UNBOUND NOTES AND DRAWINGS,

UNDATED, NEW YORK PERIOD (1882-1886)

Joules table work on Motors

Remarks	Webers	Foot pounds per H Power per hour	Work in ft-lbs per grain of Zinc.	Total Zinc Consumed in grains
Motor held stiff	100	0		535·25
" Doing work	$66\frac{2}{3}$	18983	53	356·83
" "	50	21357	79	267.62
" "	$33\frac{1}{3}$	18988	106·4	178·42
" "	1	845·73	815	5·3525

Chem News Vol 23 p 172.

	or Max duty
53	$\frac{1}{8}$ Max duty
79	$\frac{1}{2}$ "
106.4	$\frac{2}{3}$ "
815	$\frac{99}{100}$

Substitute for coating platinum of inside part to insulate it.

Oxide Bismuth Bi_2O_3 – oxdy flame, melts to ~~dark~~ Brown

Oxide Copper CuO – black globule see of the Condr –

Cryolite fuses – candle

Massicot – melts to yellow glass spread to like litharge,

Pb – 89 – C 3½ – Si 2½

perhaps Silica & oxide lead alone will fuse –

Talc – no alkali fuses on plat with dif B Blowpipe

Amber carbonizes without melting = big smoke and odor

El. Lt. – Filaments

Carbonize hair, horn, in strong KO, SO_4 – Boric acid + Linseed oil – Chl Zn

Squirt gelatine, then act on by Tannic = gallic – pyrogallic – long time see if carbonize – also string chlorine water which has and make tough elastic transport gut –

Regup sand bath for carbonization Inch things –

gut – ~~gelose~~ – Chinese moss –

Fall tube Experiment – Use Gutta in Chloroform – also Gold & Linseed oil – Dry – Dap also same diluted Turpentine – Varnish – shellac + alcohol – Isopurit + Qualm – Rubber in Bisulph or Benzine – Soak fil glycerin high – Manganese grape sugar –

(1883)

1@2	2@3	3@4	4@6	5@6	6@8	8@10	
							90000
							18000
							18000
							91000
							136000
	6						10800
							56200
							17000
45							18000
							90000
							14000
				8	5	7	17000
			10	5			21000
	30	19		7			20000
				10			20000
				14			155000
				30			106000
				105			56000
105				184			80000
							122000
							13000
							13000
							38000
							57000

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

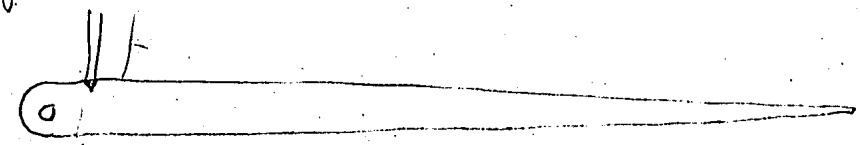
Form M. 2-5.

W. D. RICH,
SUP'T OF CONSTRUCTION.

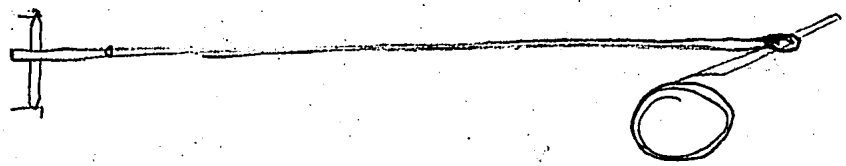
..... 188

Address reply to.....

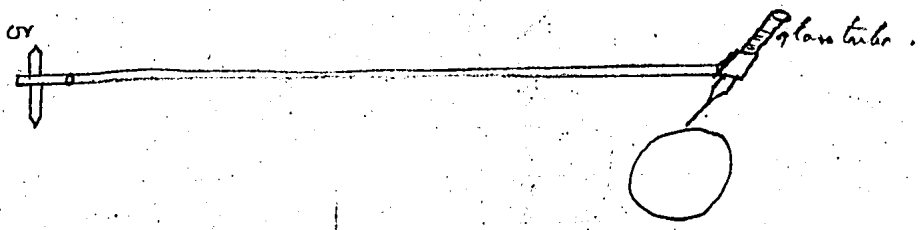
John Make that lever on the Mal-graph stiff this



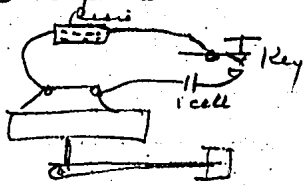
and about 1/16 thick. while we are experimenting on the sapphire you better put in a ladys writing pen or little glass tube with ink (aniline ink) thus



or



get it working yourself by using 1 cell of battery & key direct on Mal-graph. You can test its conductiveness by putting in Jesus Corner



Finished

Filed: D 1880 "Electromotograph" Form M. 1-2

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

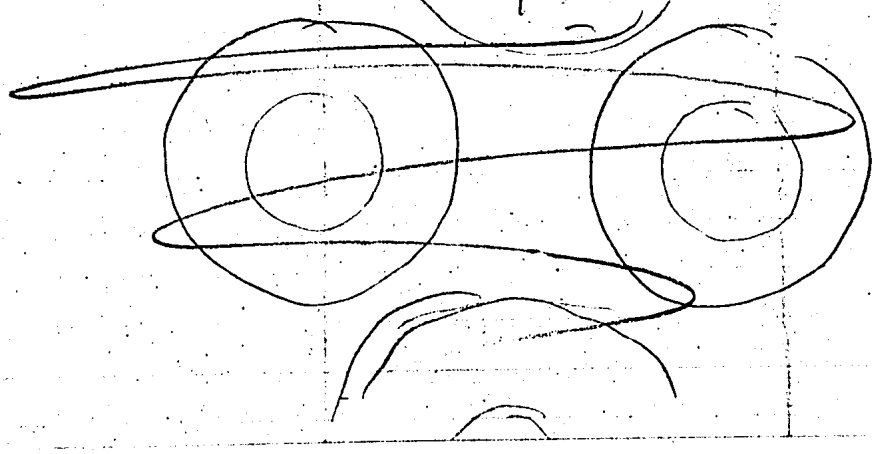
W. D. RICH,
SUP'T OF CONSTRUCTION.

(1880?) 188

Address reply to 2

~~demonstrate the~~ Put a handle on the motograph you arranged to open & close a sounder. I will turn it by hand steady enough to give at a rough test = Have it ready by 4 pm —

You must design a good motor for running motograph = I told you yesterday to alter a motor to close on a platina point but you didn't do it please have this done so you try it on the motor that runs that little gas lighting stake machine =
I think the new motor should have 2 pair magnets like the old unusual printer and large say this size
no thats too large See next page



Finished

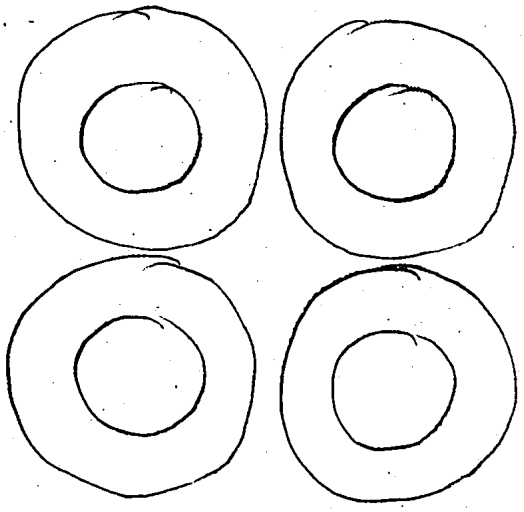
THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

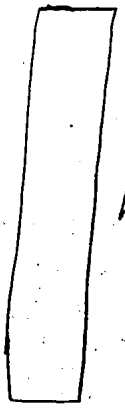
Form M. 3-4

W. D. RICH,
SUP'T OF CONSTRUCTION.

..... 188

Address reply to 3





heavy armature
in fly wheel ring

Finished

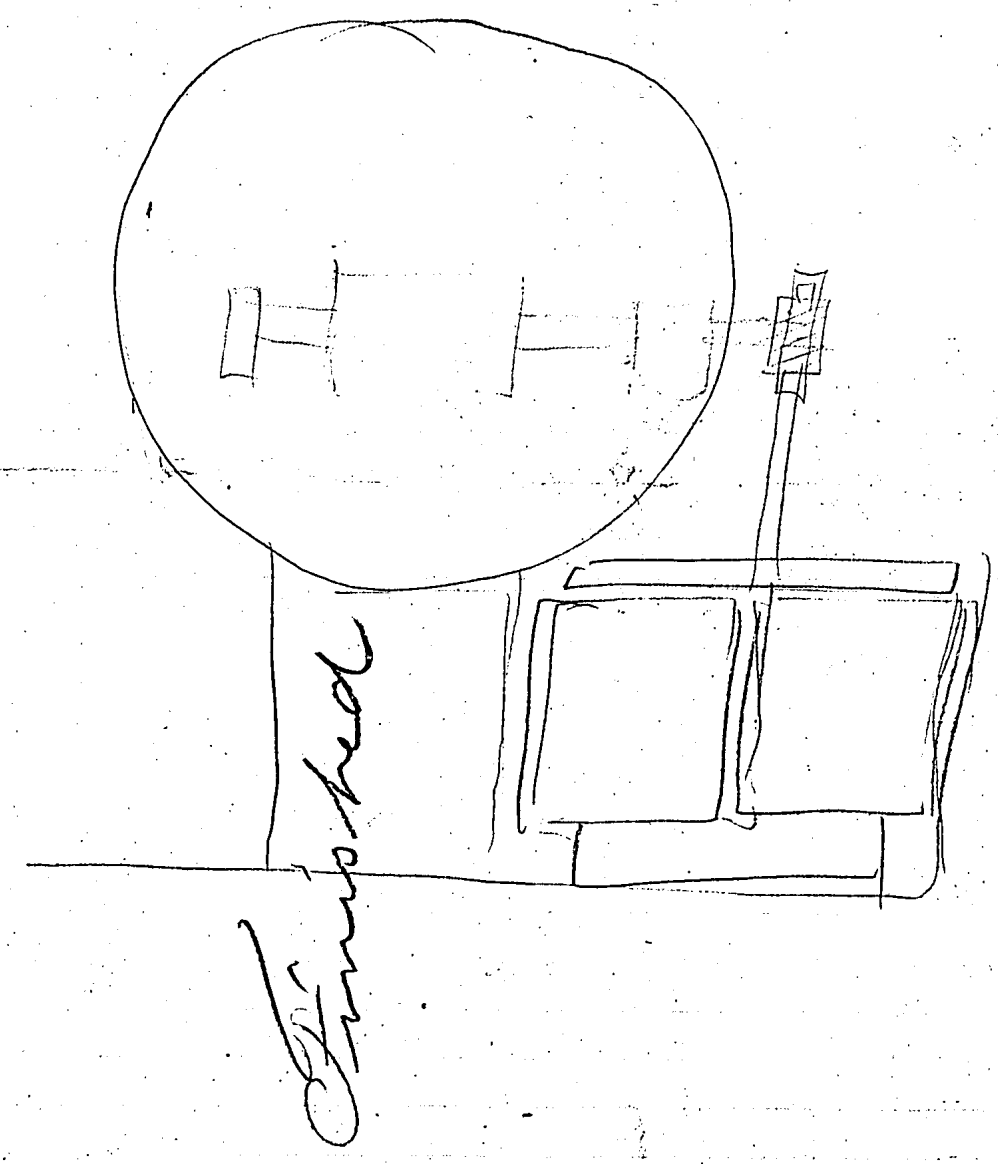
Form M.

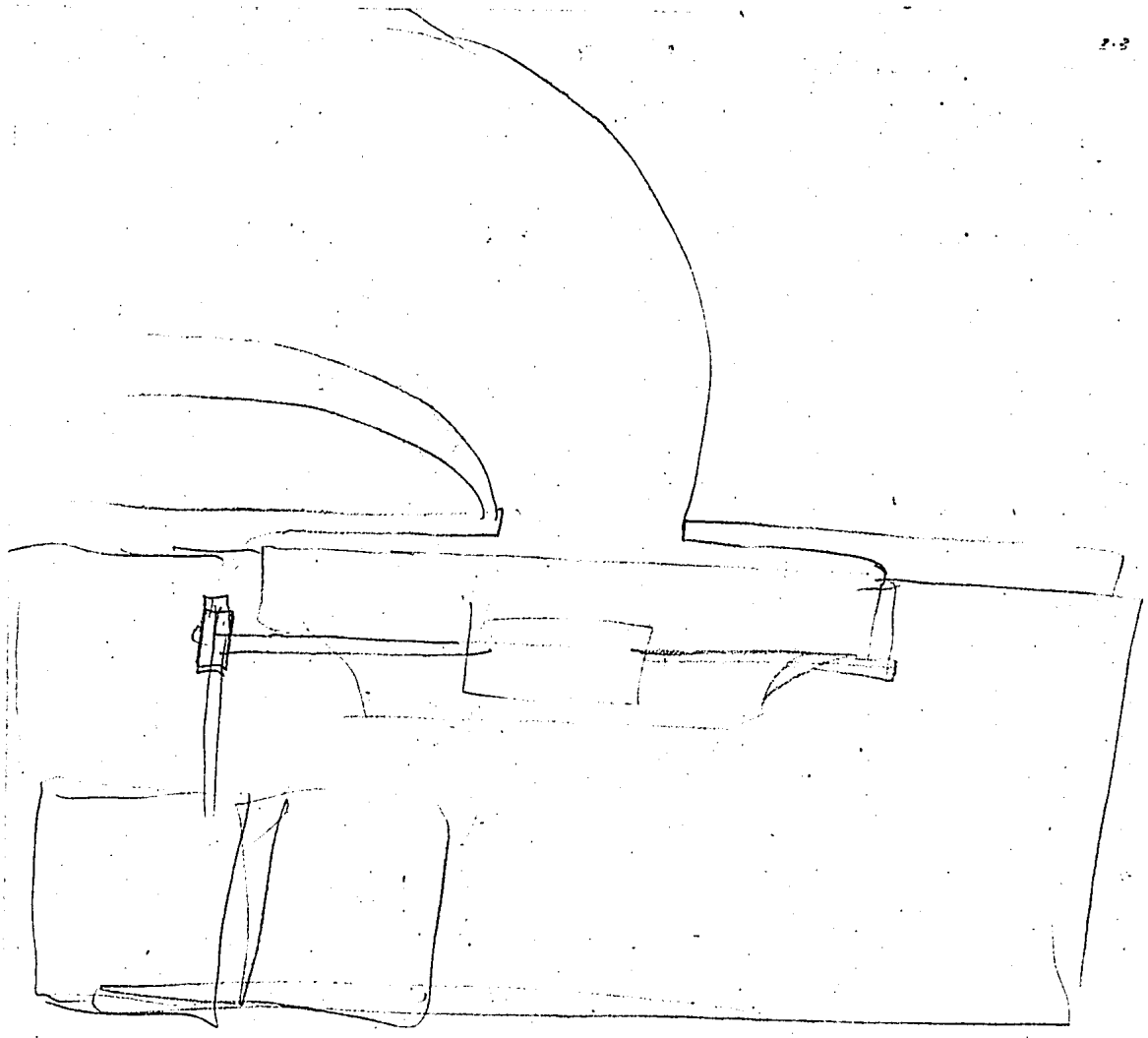
THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION.

..... 188

Address reply to.....





Must have Easy
way to get to Chalk -

How about that Individual call
Please rig up that Telephone Repeater that didnt
work & have 2 good transmitters put in &
get it all ready for me to test — Edison

Table of resistance of different sizes of Wallace Carbon.

Table of the number of V&Webs on Wallace Carbons different sizes & the temperature with various Webers up from ~~[illegible]~~ a fraction of a weber to a temperature of 300 or 400 fahr

---

Table of ~~maximum~~ german silver wire from finest to large size the amount of weber from ~~temp~~ air up to at least 300 or more fahr — Table must give it in air also in air Covered in Closed place. —

also put two wires side by side as we use them in boxes, see differences also with 3 & 4 side by side —

Tabulate whole thing =

Table of temperature of the wire on Z machine with 30 lights on for 2 hours, use three thermometers try temp band — of wire between band, of Commutator

be sure brushes set at nonsparking point 2
The allow it to cool down to atmosphere
& start fresh with 150 lamps for 2 hours
then stop & note temperature in the 3
places as before =
Then cool to atmosphere, and
put 200 lamps on & run for 2
hours - & take readings =
also see you Watts are always
same to do this you will have
to regulate the field =

Want this very same experiment
tried with the K machine.
1st 125 Lamps 2nd 250, 3rd
85 more or 335 Lamps, this I believe
makes the same proportion, Tabulate
the whole thing -

~~Want the Maximum~~

Table like Clarke has printed but figured out for German Silver - But ~~table~~ Column giving ~~length~~ Radiating surface as well as lb ohm etc =

Table of radiating surface & resistance for the sizes wires nearest for regulating Lamps from 16 candles to bright red. table must give for every different number Lamps from one up to 800, greatest heat which German Silver must resist shall not exceed temperature of the binding wire around a K machine with full load running 2 hours this from Experience at least has been found. safe =

all of Georgi tables on meters, his Constants =

all of Uptons Curves except life Curves,

Table showing cost Lamp in detail -

Table of Engines different size cy Cards speed, different powers at different Boiler pressures, prices,

Full description Z. L. K. E + C outline sketch with sizes to fold up in book, must give exact distance from inn surface of bobbin to non surface of field - heighth of brass Bands around wire from field - Exact space number wire size copper size insulation thereon, also tape pasteboard paper. Exact contour of space on End amount of wire on End to wire on straight part, weights of everything, Cost stock. ~~number~~ waste stock = Exact number layers on field, space occupied = every detail,

Table of Volts on L. K. Z at different speed with 150. on L 250 on K & 60 on Z set at non sparking point all cases, go down as slow as 1/2 then regulate revolutions & after running some time. take the readings = then gradually increase speed 50 or 100 revolutions Each time, setting brushes if necessary to get rid spark note speed & volts several times Each speed to get a mean = then after doing this add more than regular load & try it - want to ascertain the effect of the field getting more volts as speed increases if this dont bring up more than ~~pump~~ due to speed = also in this Experiment take volts with no load & brushes set at neutral point at different speeds = now use a seperate machine

with regulator load go all over the dynamo at different speed Keep the field constant & get reading of volts around field.

all the safety catch tables

Table of Kruzis tubes giving Exact sizes of tubes spaces, washers rods their circular mills Res per foot per length per mile lbs per mile radiating surface per foot length & mile, lbs per ohm weight length compound. per foot. all his tables

Table of hp of any given tube at different pressures or ammyline Eng –

Table of Res of different metals & alloys – want it pretty full –

disruptive resistance of different thickness of amorphous substances in thousandths

Curve of saturation of field magnet all the data Andrews has on the different size fields – & armatures –

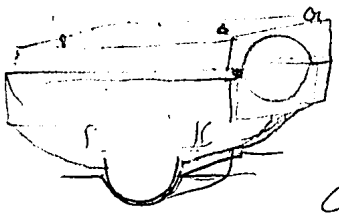
Table amount deposit per unit per different metals –

Table Res of Liquids
" " polarization

Table how lamp comes down in Res as it leaves
in pump = same as Howell made =

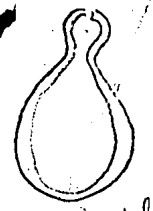
sizes of all our lamps Radiating surface
in Milimeter -

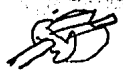
Simple rules -



ask Ran

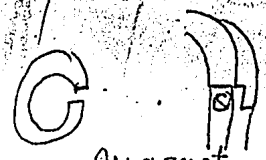
Monthly life Curve for every Month since
we started on lamps of same size
(1e) filament Cut same size =
all on one sheet =





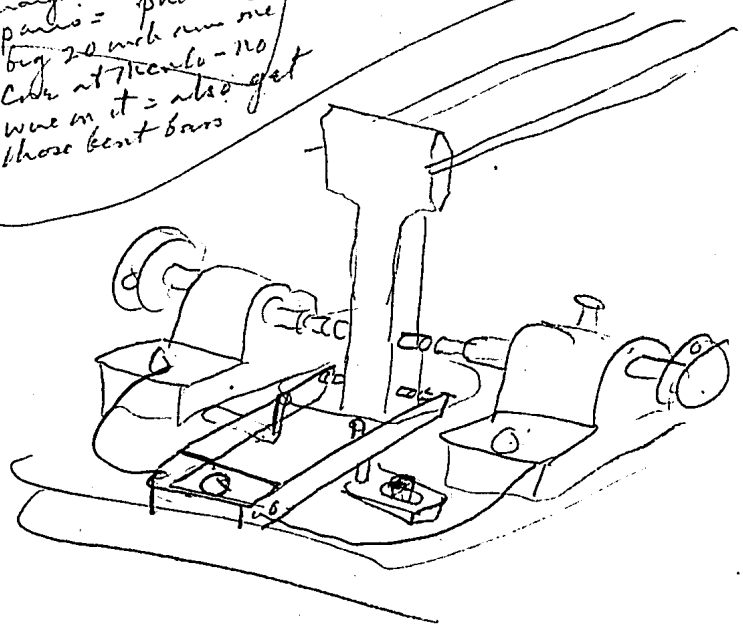
Sheet in here.

model of



magnet

Small model of original ~~straight~~ that cannot pass = photo of big 20 inch one one Cole at Toronto - no wire on it = also get those bent bars



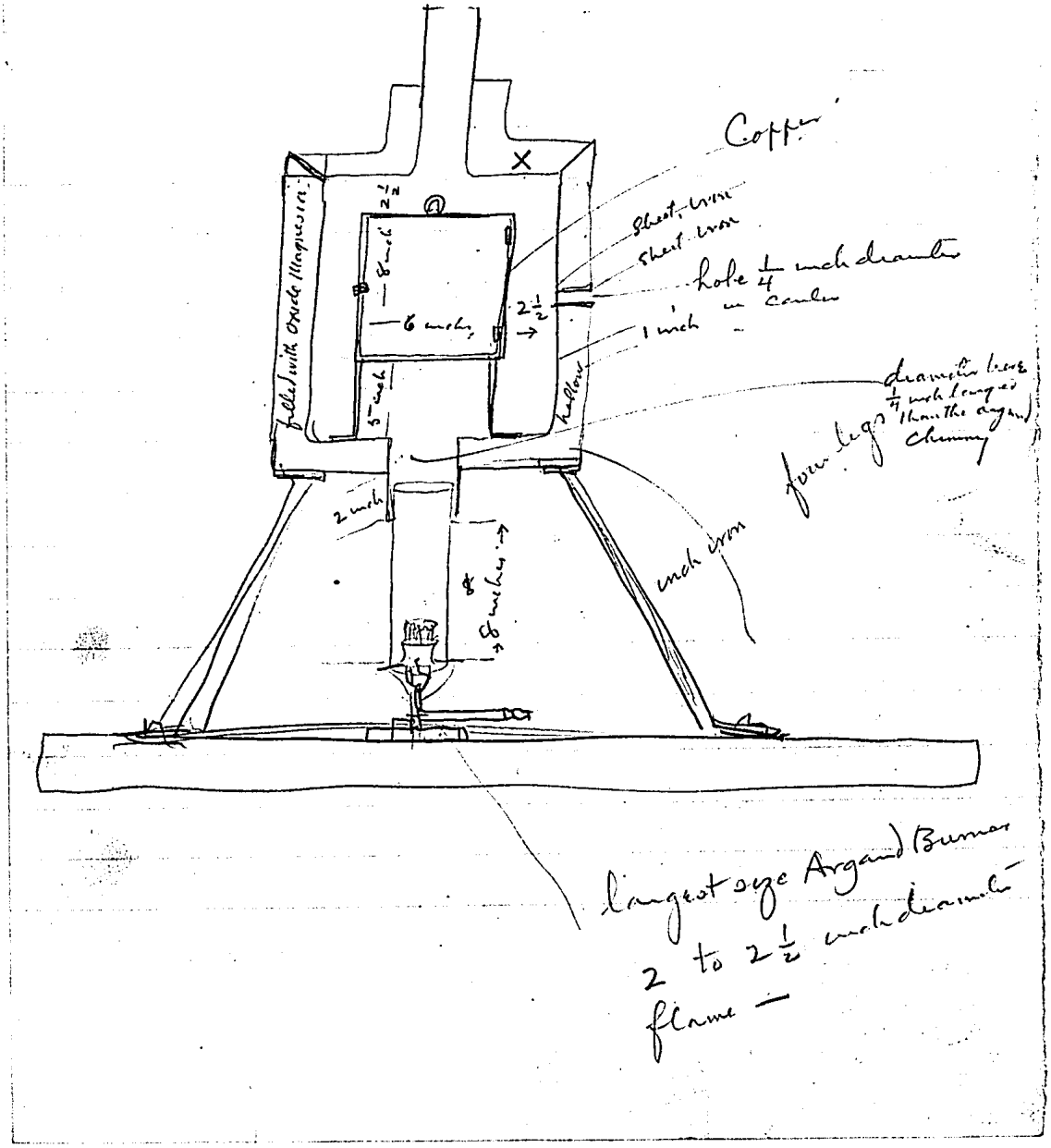
unpronounced on pressure indicator.

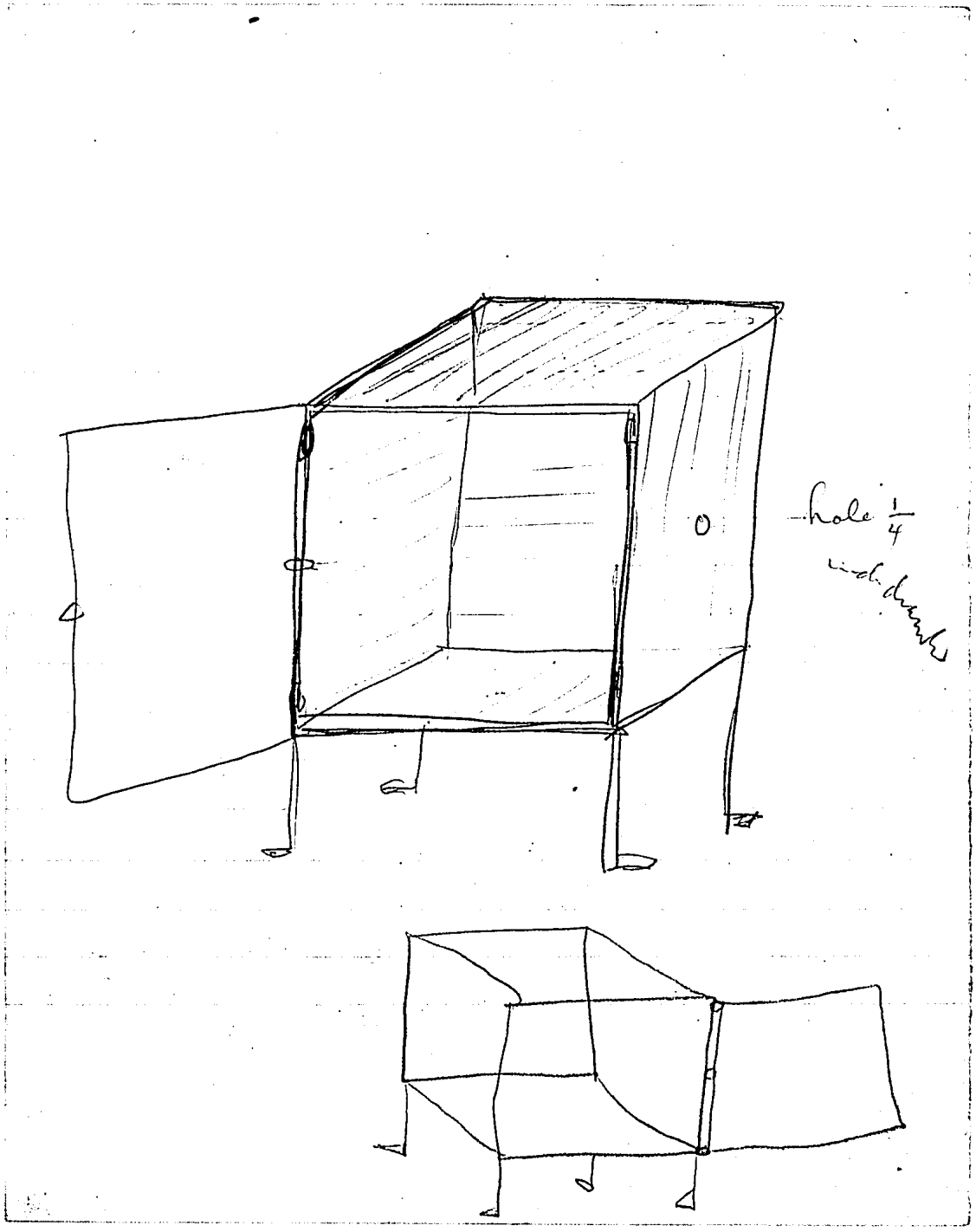
I think German steel spring or German silver might be better as its not effected by heat like, brass =

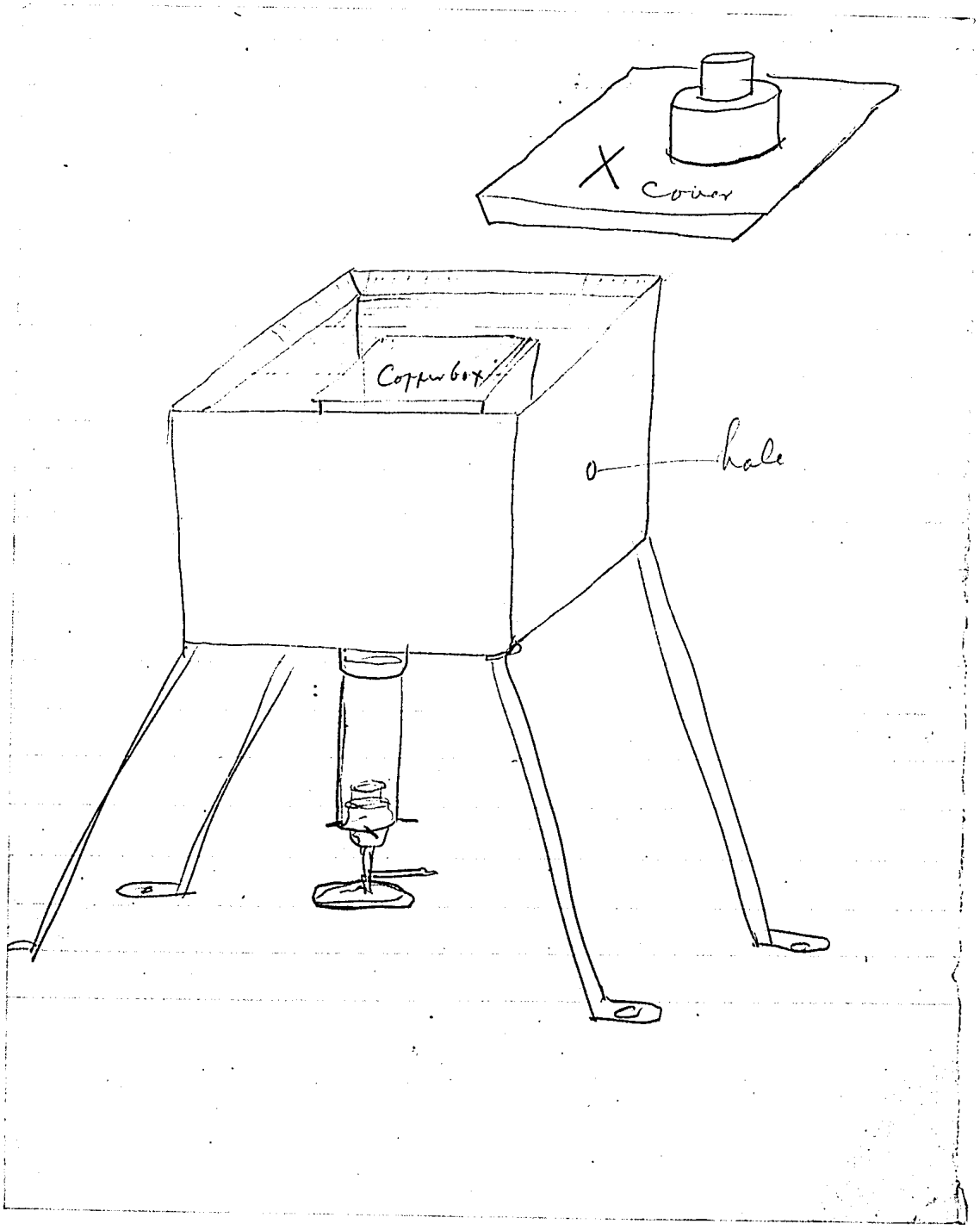
Experiments that Francis made on temperature of pans Machine bars Etc -

Maximum amount of Volts that can be lost from L + K with their regular load ~~[illegible]~~ + 900 Rev Each, + Keep 100 Volts in lamps + Grounds this greatest no Volt in leading wire can ~~[illegible]~~ have =

determine Volts on K ~~[illegible]~~ with Wire on all the left side of magnet left out, also, Connected neg way with wire of one field open - dittto 2 open


Copper
sheet iron
sheet iron
hole 1/4 inch diameter
in center
1 inch
hollow
filled with Oxide Magnesia
6 inches
2 1/2
2 1/2
5 inch
2 inch
8 inches
diameter less
1/4 inch longer
than the argand
chimney
four legs
inch iron
largest size Argand Burner
2 to 2 1/2 inch diameter
flame


hole 1/4
individuals


X
Corner
Copper box
hole

This is test of regulator made with two dash pots and sliding commutator it seems to work all right. This test was taken as quick as the deflection could be read when given longer intervals between each reading it would indicate absolute correct

John F Ott.

Def	Volts	Lamps
178	96.76	1
177	96.83	5
173	96.13	10
177	— —	15
177	— —	20
180	97.75	25
177	96.13	30
180	97.75	35
178	96.76	40
176	95.59	45
180	97.75	50
173	93.94	60
180	97.75	65
175	95.05	70
173	93.97	75

Diff 3.78 Volts

Def	Volts	Lamps
180	97.75	75
180	97.75	70
177	96.13	65
180	97.75	60
180	97.75	55
177	96.13	50
180	97.75	45
177	96.13	40
180	97.75	35
177	96.13	30
178	96.67	25
177	96.59	20
180	97.75	15
179	97.21	10
180	97.75	1

Diff 1.62 Volts

Order 8.

Switches put in every 3 Seconds & pulled at the expiration of that time & 1 hole in the Boxes cut out between each Switching when the both Boxes are cut out take all off Wire Box; & change to 169 V line & Peg out one hole at a time up to 130 V put Switch in every 3 Seconds until tube will not break any more than brown at yellow for 10 minutes & Seal-off

Order 9

Get Vacuum then put on Current 55 V line then cut out one hole at a time on both R & Wire Resist Boxes keeping hand on Switch & when tube breaks; pull Switch immediately, when tube does not break any more change to 110 V line leave R. Resist. Box cut out & move one hole as tube becomes solid, pulling Switch as soon as air is going down when it does not go down on 110 V line put on 169 V & continue

breaking up the tube until
Clamps become clean & no
more air goes down tube
then put switch in & let
Lamps burn at 80 C
130 V. for 5. minutes &
take off current & Seal off.

Form H.

THOMAS A. EDISON, E.L.—Lamps or Filaments (March 7, 1881)

Central Station, Construction Dep't.,

No. 65 FIFTH AVENUE,

New York, ... 188

Electroplating Carbons -

July 21/81 42 A Lamps plate clamps can forward -

July 22/81 5 carbons scanned in wire supports as for plating

July 25/81 27 paper coops treated by Dr Naid (Hum?) test in plating solution -
Apparatus used by Lawson for plating described -

Mch 2/81. Lawson advises use of gutta percha for under connection in plating apparatus -

Mch 7/81 Lawson using three of the box troughs for plating and today it can through 150 coops -

Mch 8th/81 150 carbons plated to the wires.

Order No 202 (no date nor know in whose writing "deposit" clamps used - Improved method of plating used.

Form H.

THOMAS A. EDISON,

Central Station, Construction Dep't.,

No. 65 FIFTH AVENUE,

New York, ... 188

Wm J. Hammer writes Mch 7/81 desires to have some of the "carbon-coops" up shortly.

Mch 7/81

(1883)

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK 188

Vital Statistics.

Carbonic Oxide is not merely passive in not supporting respiration, for an animal perishes if left for sometime in an atmosphere containing a few per cent of this gas. To its presence must be attributed the uneasiness and headaches experienced in badly ventilated apartments. If a large proportion of Carbonic Oxide be present in a closely shut room death ensues.

Reynaults Chemistry
Vol 1 Page 321.

(1883)

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK 188

Carbonic Oxide is a very poisonous gas insomuch that it combining with the Hoemaglobin of the blood small animals die almost almost instantly when placed in the gas and even very small quantities are inhaled and severe headaches giddiness and insensibility readily occur.

Rasor & S Page 620
F. Hoffman Publisher

Fatal effects of burning Charcoal

The remarkable action of Carbonic Oxide appears to depend on the fact that the whole dissolved Oxygen is thereby expelled, the blood acquiring a purple red color.

Series of Tests 64 -
Saturation curve of Field of
H - 1 -

Speed	Current in field in Amperes		Volts at terminals	
	.4		9	
1080 (?)	.4		8.5	
980 Just	.4		8.5	
	1.0		17	
	1.1		21	
	1.2		22.0	
	1.2		22	
	1.2	1.2	22	22
	1.2		22	
	1.1		22.5	
990	1.15		23	
	1.15		23	
	3.5		64	
	3.55		64.5	
	3.6	3.6	65	65 1/2
	3.6		65.5	
1000	3.6		65.5	

Speed	Current ~~[illegible]~~ amp		Volt	
	3.5.0		64.5	
	3.5.0		64.0	
	5.15		82.5	
945	5.00		82.	
	4.95		81.5	
	4.95	4.95	81.5	81.5 + 1/20 = 85.6
	4.95		81.5	
	4.95		81.5	
	~~4.90~~		~~82.~~	
	~~4.95~~		~~82.5~~	
	~~4.95~~		~~82.5~~	
	~~5.00~~		85	
	5.05		86.5	
	5.15	5.10	85.5	86.
1000	5.15		87.0	
	5.15		87.0	
	7.25		100.5	
	7.30		99.5	
	7.30		99.5	
	7.35		100.0	
	7.35		100.0	

Speed	Current		Volts	
	7.40		100.	
	7.40		99.5	100
9.65	7.40	7.35	99	+ 1/25 = 104
	7.45		100.5	
	7.50		102.5	
	7.50		101.5	
	7.60		105	
	7.70		106	
	7.75		106.5	107.3
	7.80	7.84	106.5	+ 1/200 =
9.95	7.90		107.5	107.8
	7.95		108.0	
	8.00		108.5	
	8.00		108.5	
	8.10		109.0	
	9.60		112.5	
9.80	9.60	9.60	110.0	110.2 + 1/50 = 112.5
	9.60		109.0	
	9.50		113.0	
	9.45		112.5	
	9.45		112.5	
	9.45		112.0	

	Current		Volts	
9.85	9.40		111	111.5 + 1/60
9.85	9.40	9.44	110	= 112.5
				11.4
10.05	9.65		114.5	
	9.60		114.5	114.2
	9.60	9.62	114.5	- 1/200 = 113.6
	9.60		114.0	
	9.65		114.0	
	10.85		118.5	
	10.90	10.92	118.5	118.4
	10.90		118.5	- 1/200 = 117.8
10.05	10.95		118.5	
	10.95		118.	
	10.95		118.5	

Benchmarks.

Reduced Spirit.

	12.80		115.5	
	12.80	12.79	115.5	115.5
950	12.75		115.5	
	12.80		115.5	
	12.05	2.05	115	2.65
	12.00	11.80	114	112.6
	11.90		113	
	11.85		113	
	11.80		112	
	11.75		112	
	11.70		112	
950	11.70		111.5	
	11.65		112	
	11.65		112	
	~~10.25~~		~~112.5~~	3.65
	10.10		107	
	10.10	10.06	106.5	106.1
915	10.10		106	+109.9
	10.05		106	
	10.00		105.5	
	10.00		105	

Speed	Current		Volts	
	10.00		107.5	108
	9.95	8.645	109	109.7
	9.90	9.86	109	
9.95	9.85		109	
	9.85		108.5	
	9.80		108	
	9.75		107.5	
	9.75		106	
	9.70		110	
	9.65		110.5	
	9.65		110.5	
	9.65	9.68	110.5	110.5
950	9.70		110.5	
	9.70		110.5	
	9.70		110.5	
	9.70		110.5	
	9.70		110.5	
	7.50		106.5	
	7.45		105.0	
	7.45	7.45	101.5	104.5
	7.45		101.5	
	7.45		101.5	

	Current	Volts	
9.95	7.40	101.5	
	7.40	101.	
	7.2	104.	
	7.1	103.5	
	7.1	103.5	
	7.1 7.05	103.	62 103 − 17
9.65 (6.2 −1.5)	7.05	103.	6.2 / 4.10 / 17
9.45	7.05	103	101.3
	7.00	102.5	
	7.00	102.5	
	4.7	78.5	
	4.7	78.	
	4.65	77.5	5+(10.0) / 1.3 / 76.
8.90 (6.0)	4.60 8(5.45) 1.68	77.0	15 (77.3)
6.00 −1.5	4.60	76.5	25 / 52 / 23
1.90	4.65	76.5	52 / 77.3
	4.75	77.0	82.5
	4.80	77.0	

Speed	Current	Volts
	4.70	86
	4.70	86
960	4.70	86
	4.70	86
	2.80	60.5
	2.80	60.5
	2.80	60.0
9.55	2.80	59.5
	2.75	59.5
	2.75	59.0
	2.70	58.0
	2.65	58.0
	2.60	57.0
	2.60	56.0
	2.60	39.0
	1.65	38.5
970	1.65	38.0
	1.70	39.0
	1.70	39.0
	1.70	39.5
	.30	12.0
	.25	11.0
	.25	10.5
950	.25	10.0
	.23	10.0
	.23	9.5
	.23	9.5
	.23	9.5
	.23	9.6

$c^2 r$ .00134
9.2
1206
268
c^2 = .012328

123
121
121
1246
14681

49
.0408

123
16
738
123
1968

123
.25
615
246
3075

123
.87
123
984
9963

123
144
492
492
123
17712

123
64
492
738
7872

123
49
1107
492
60

123
36
738
369
4428

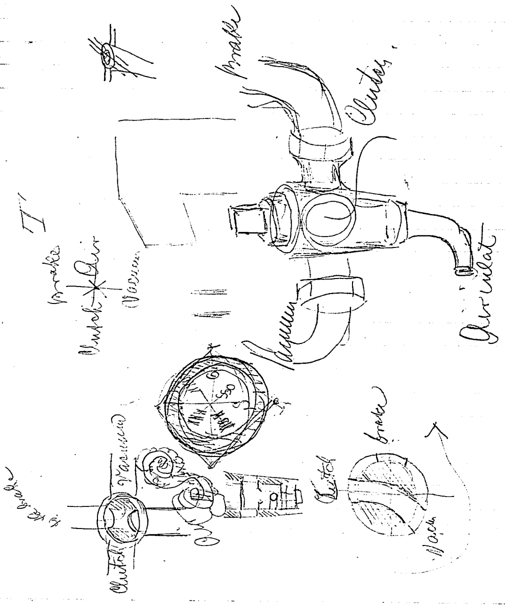
13
39
13
169
13
507
338
169
5887

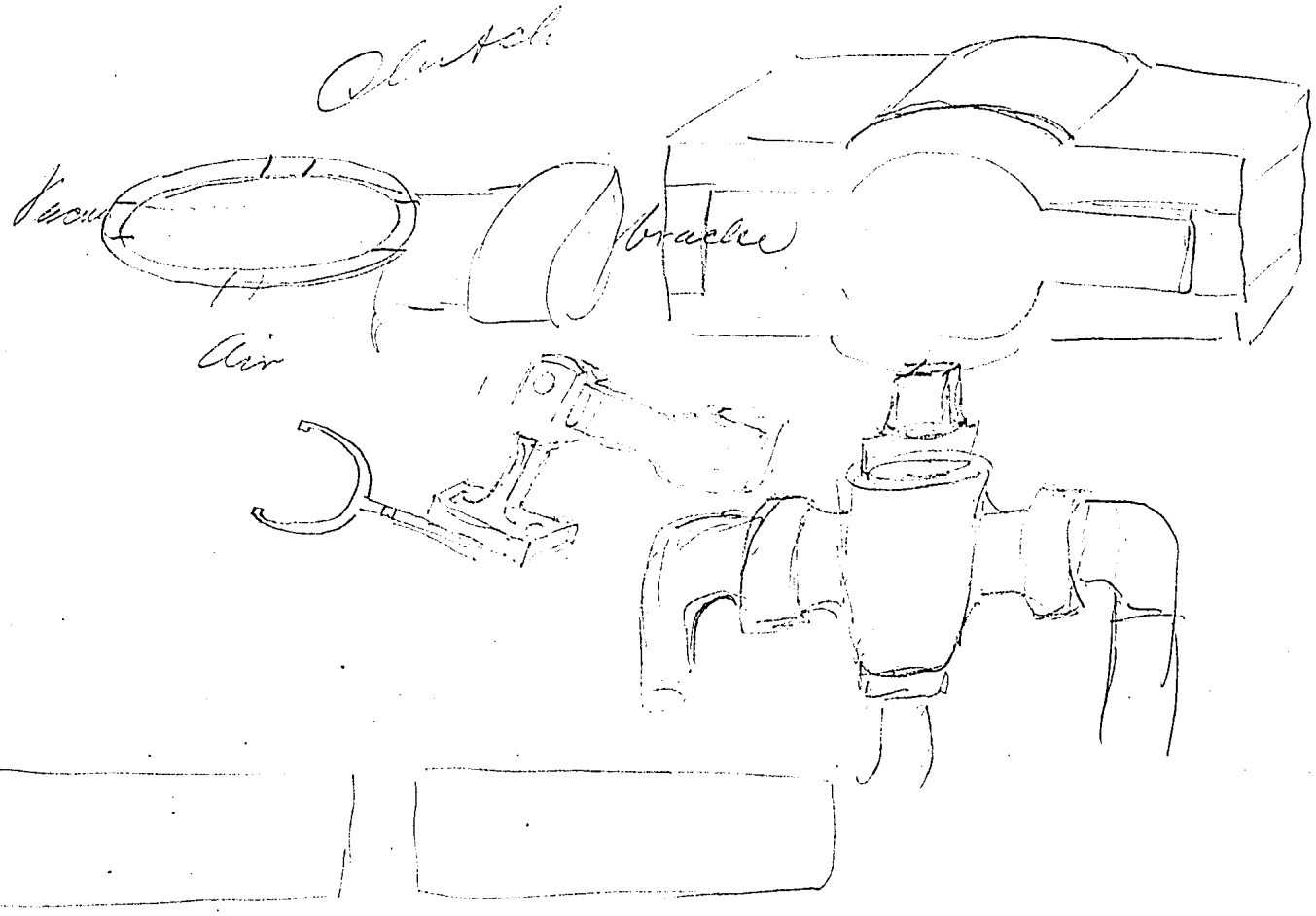
THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 Fifth Avenue,
NEW YORK.

Form M.
W. D. RICH,
SUP'T OF CONSTRUCTION.

......................................188

Address reply to......................................




Vacuum
Air
Bracket

Form M.

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION.

.....188

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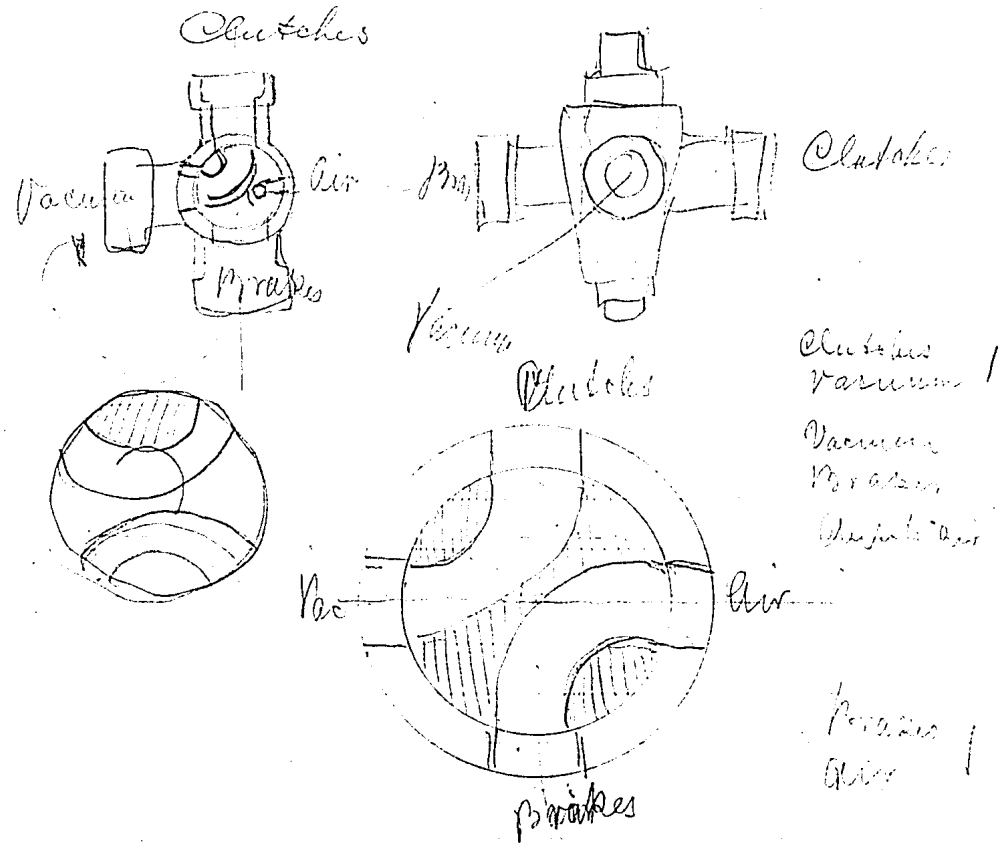
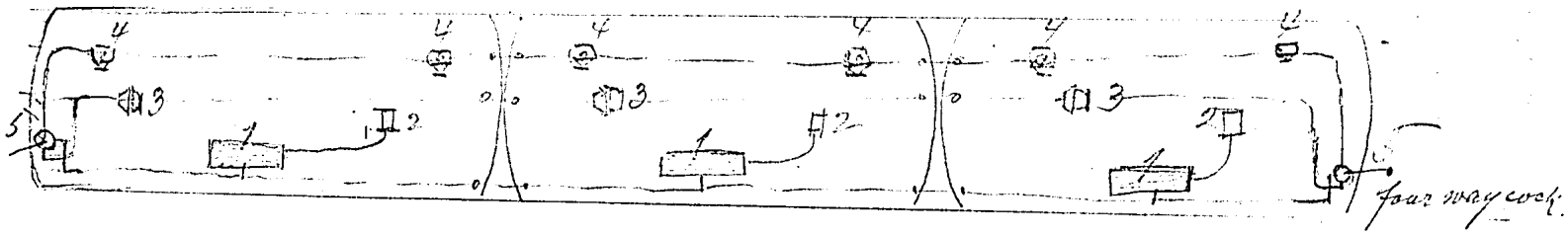
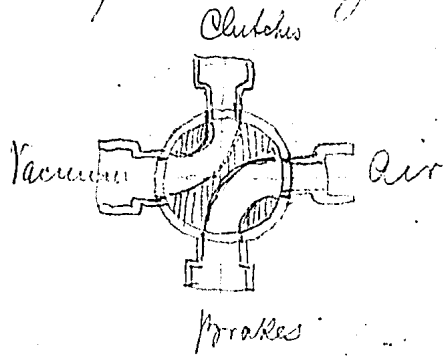




1 Vacuum chamber } connected going to the four way cock.
2 pump
3 Brake Diaphram all connected going to four way cock
4 Clutch Diaphram all connected " " " .
5 four way cock on the end of each train,

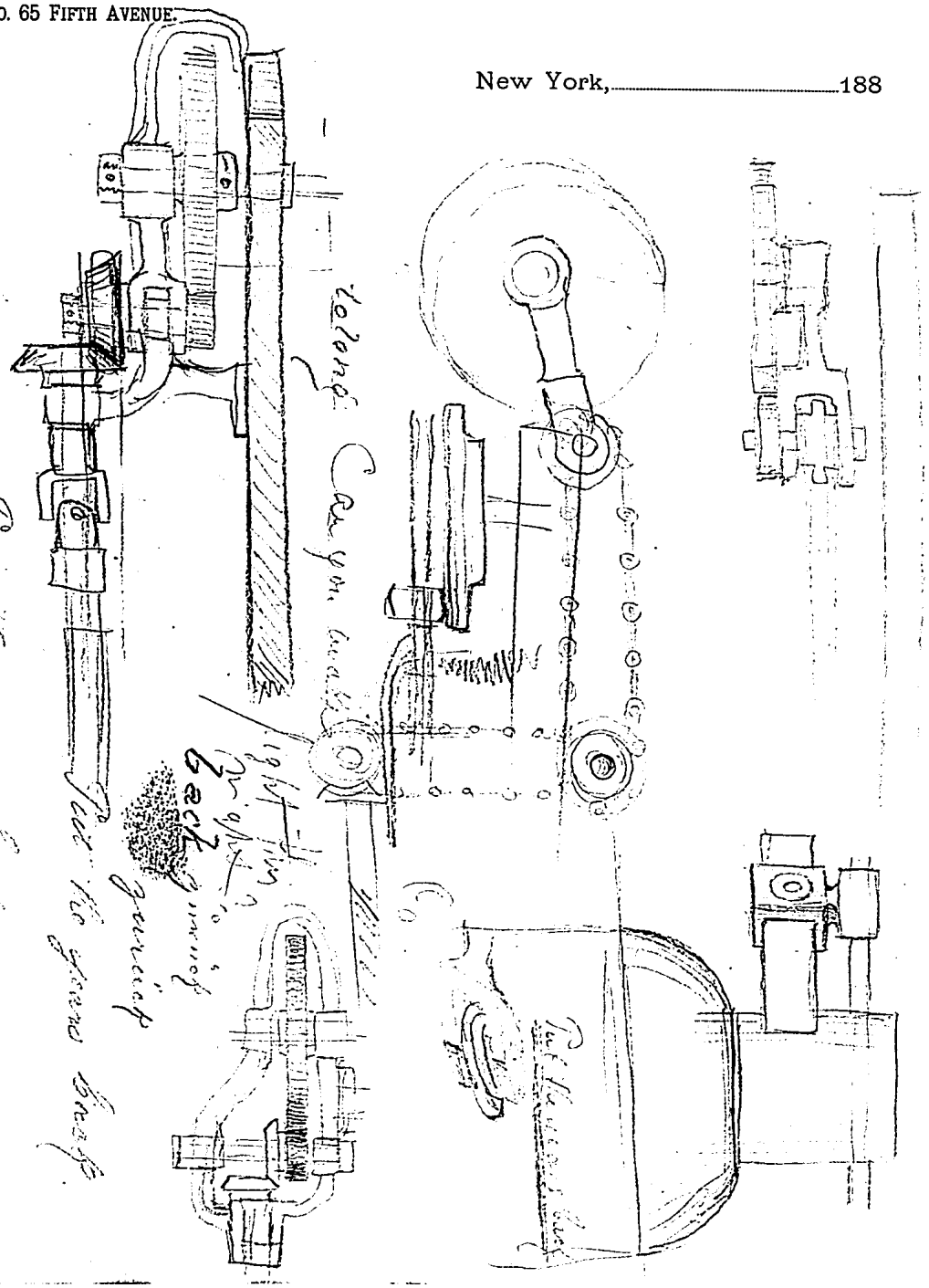


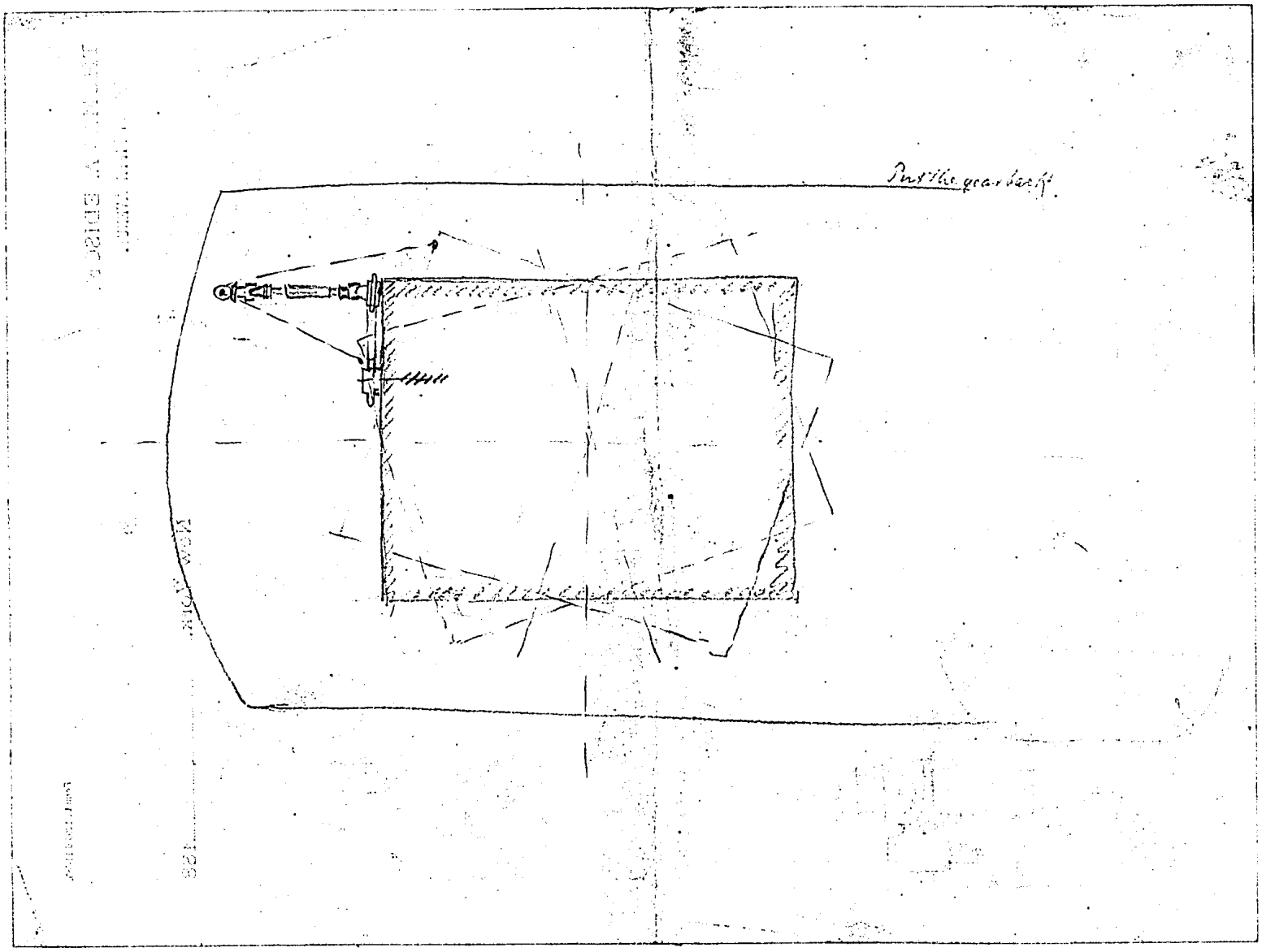
Form L. 1200-6-11-'85.

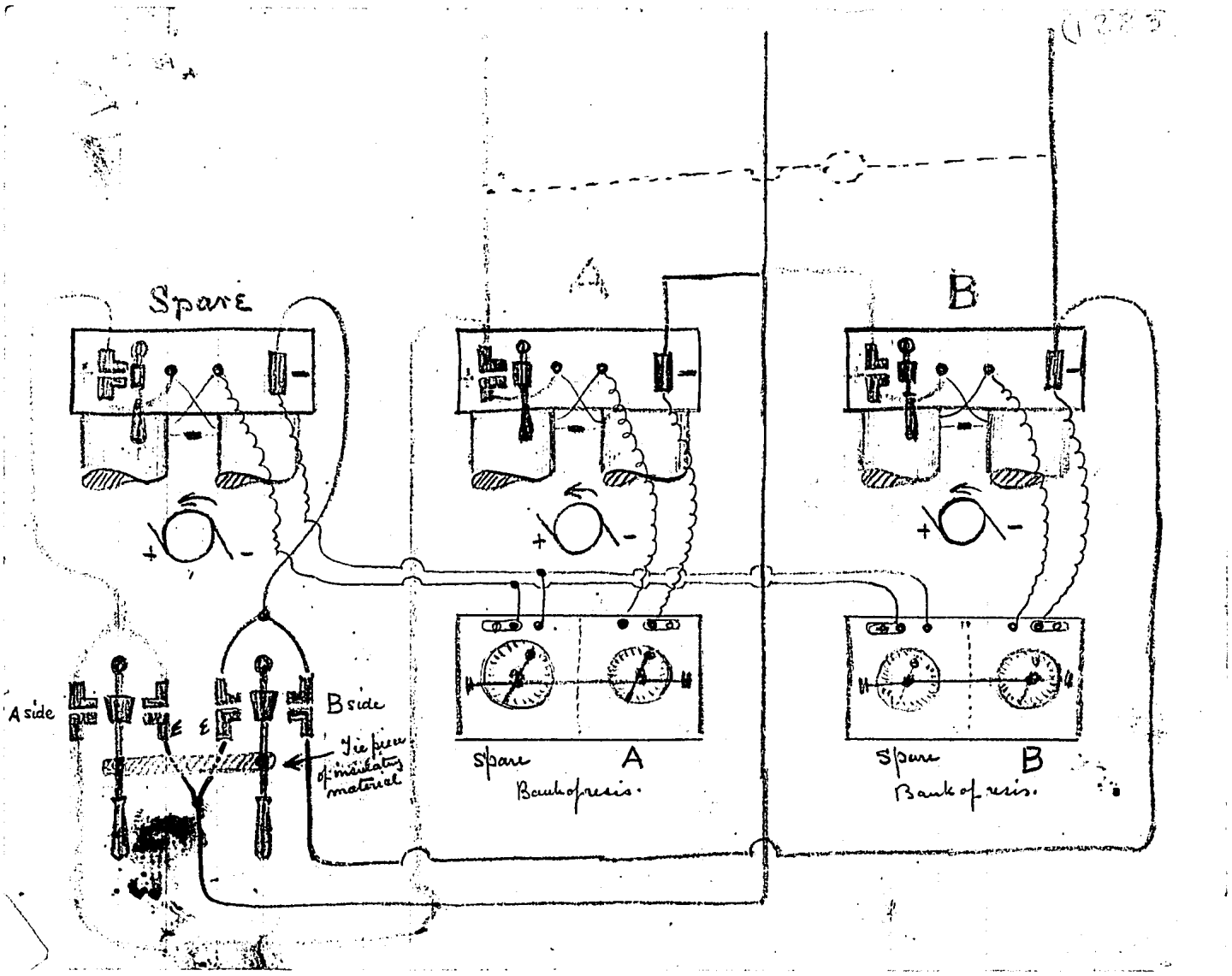
THOMAS A. EDISON,

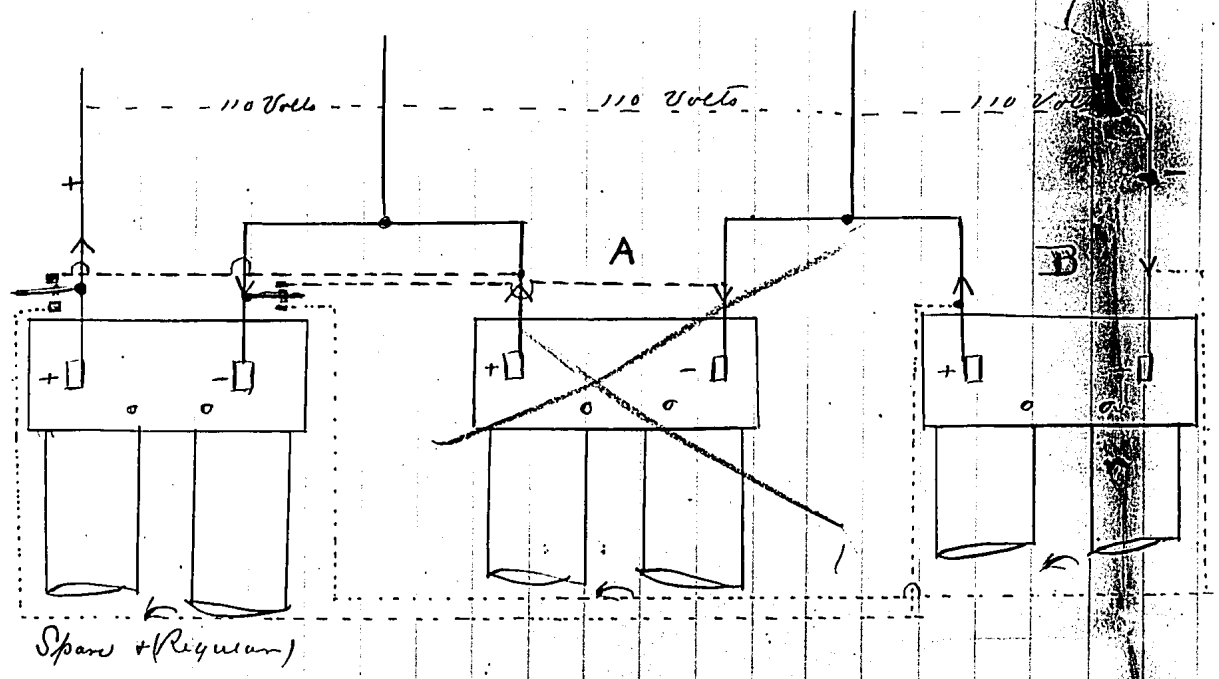
No. 65 FIFTH AVENUE.

New York, _____ 188




Put the gear here

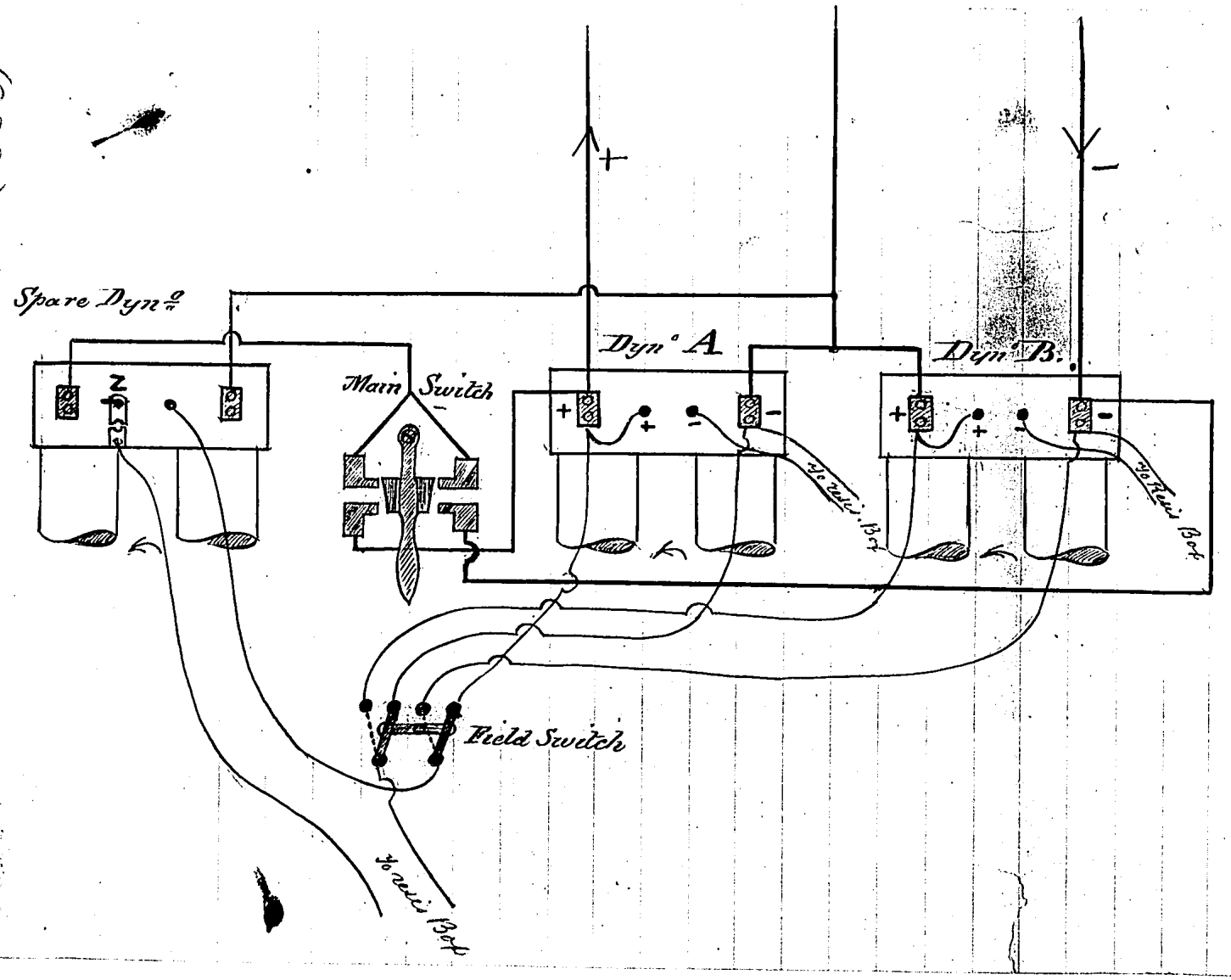

Spare
A
B
A side
B side
Tie piece of insulating material
Spare
A
Bank of resis.
Spare
B
Bank of resis.

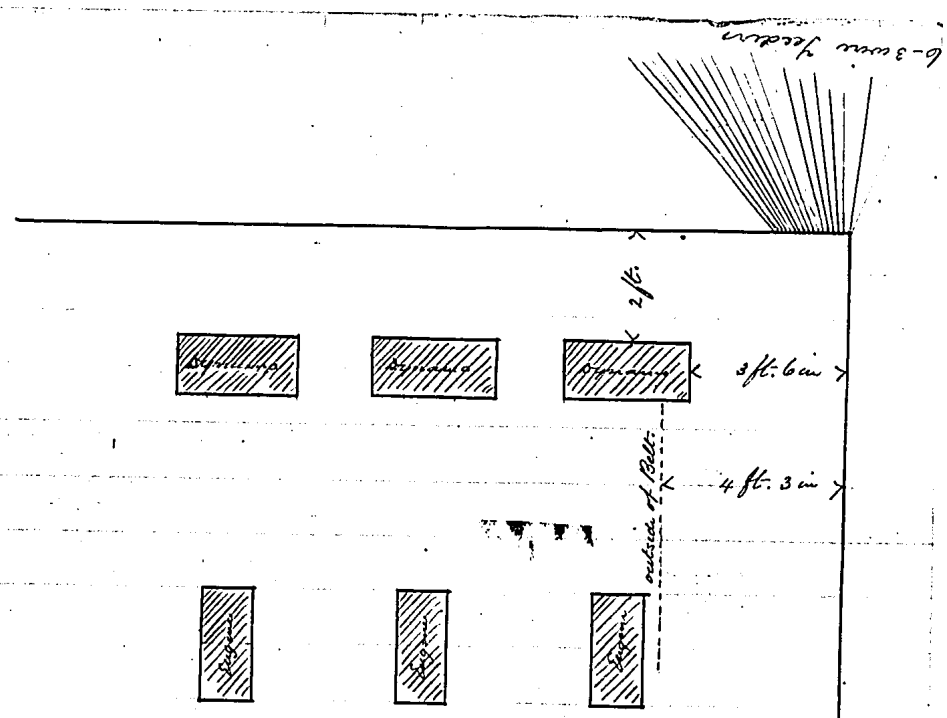


---- Connections used when helping A Dynamo
..... " " " " " " " B " " "

(1883)

(1223)

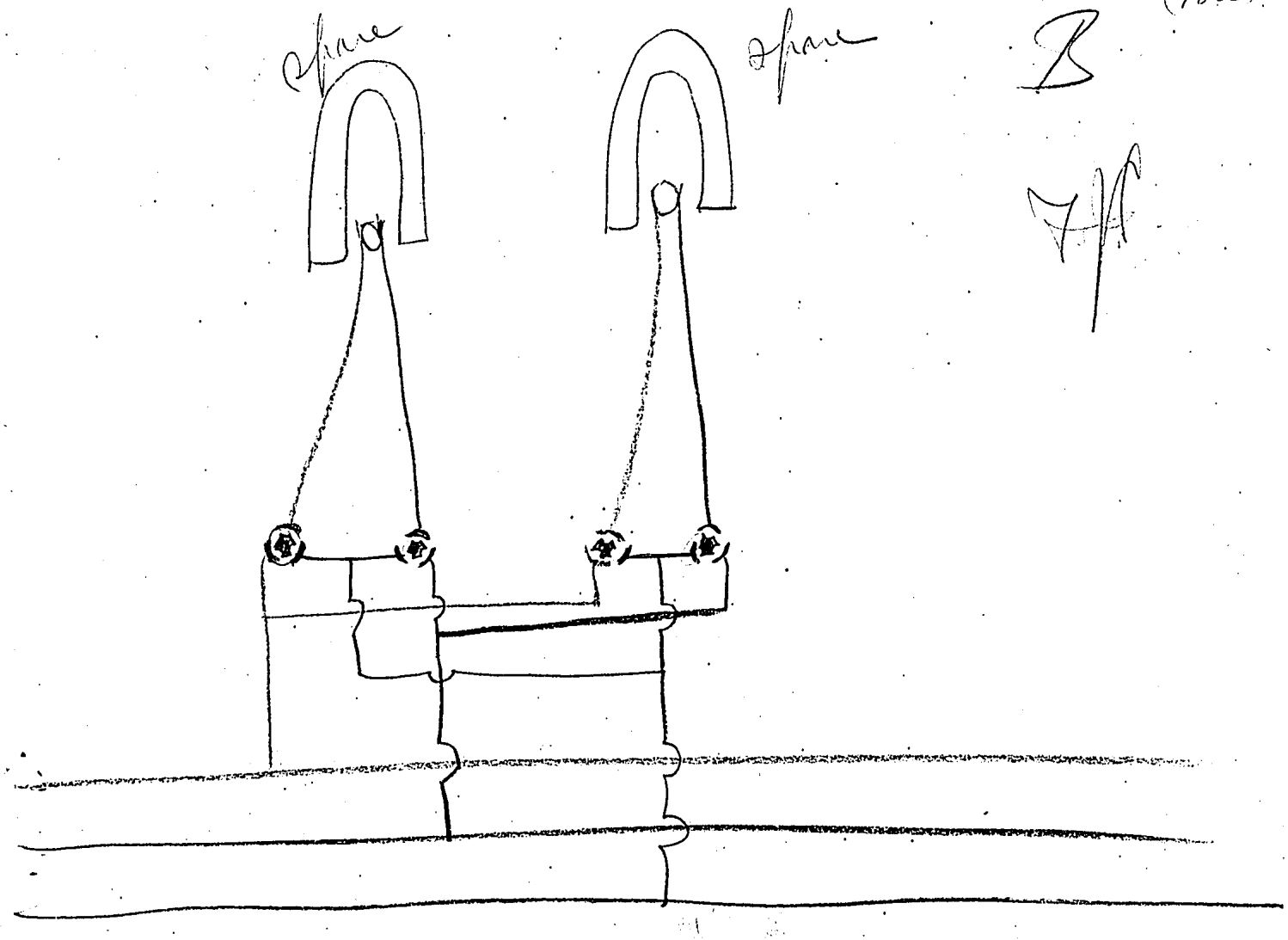

Spare Dynº
Main Switch
Dynº A
Dynº B.
+
−
To rels. Bot
To Rels Bot
Field Switch
To rels Bot



(1883)

(1883)

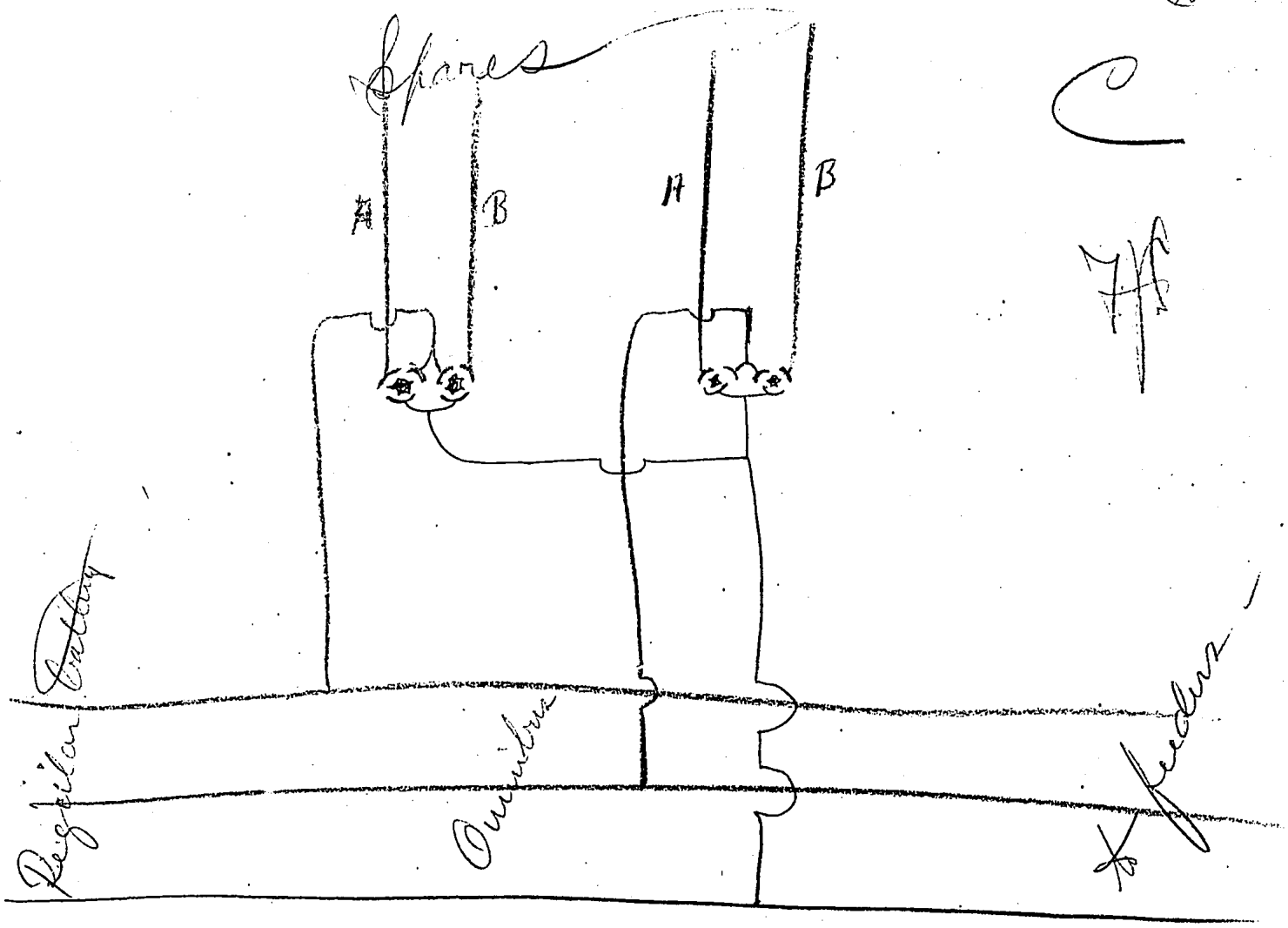
B



(1883)

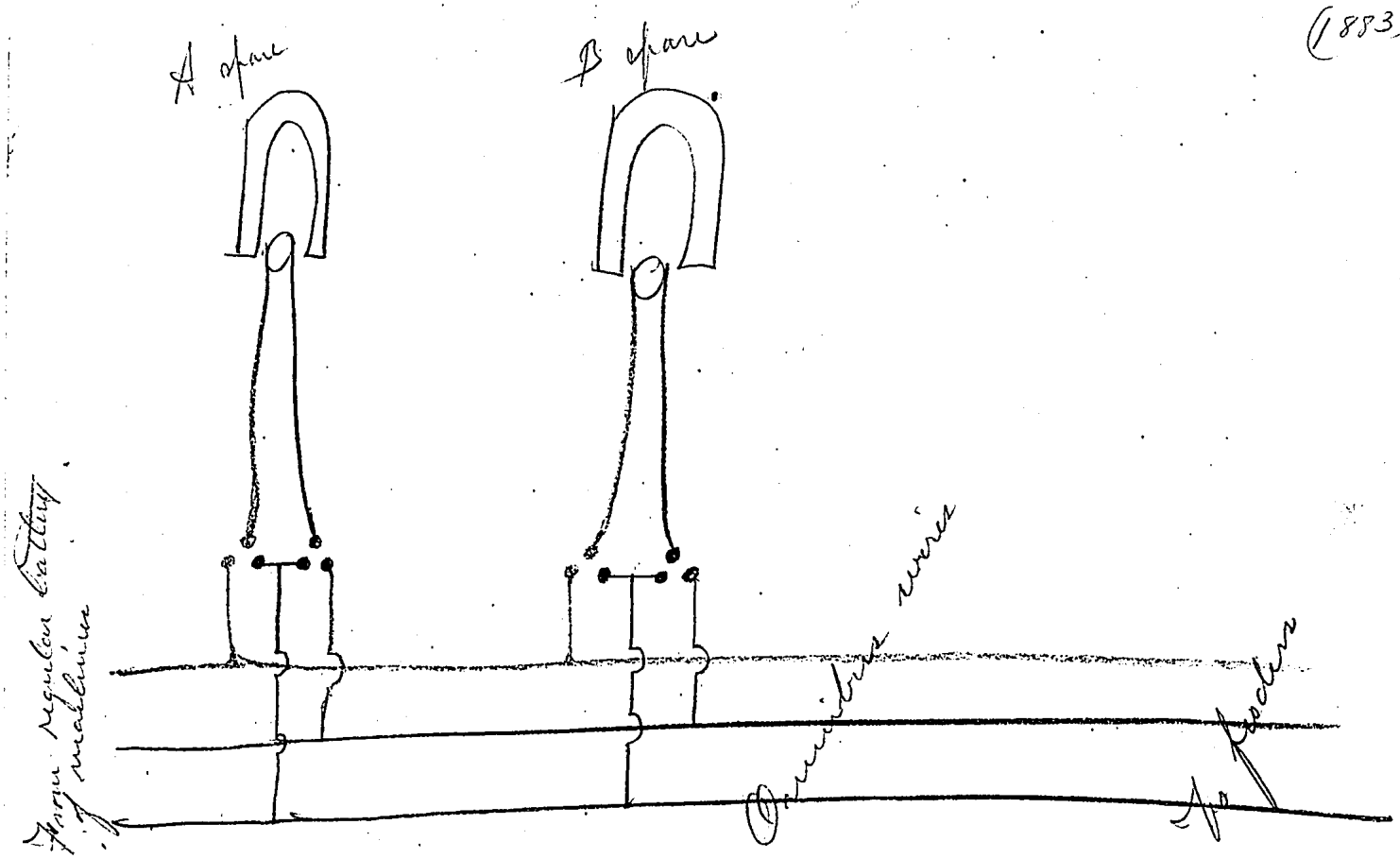
Spares

C

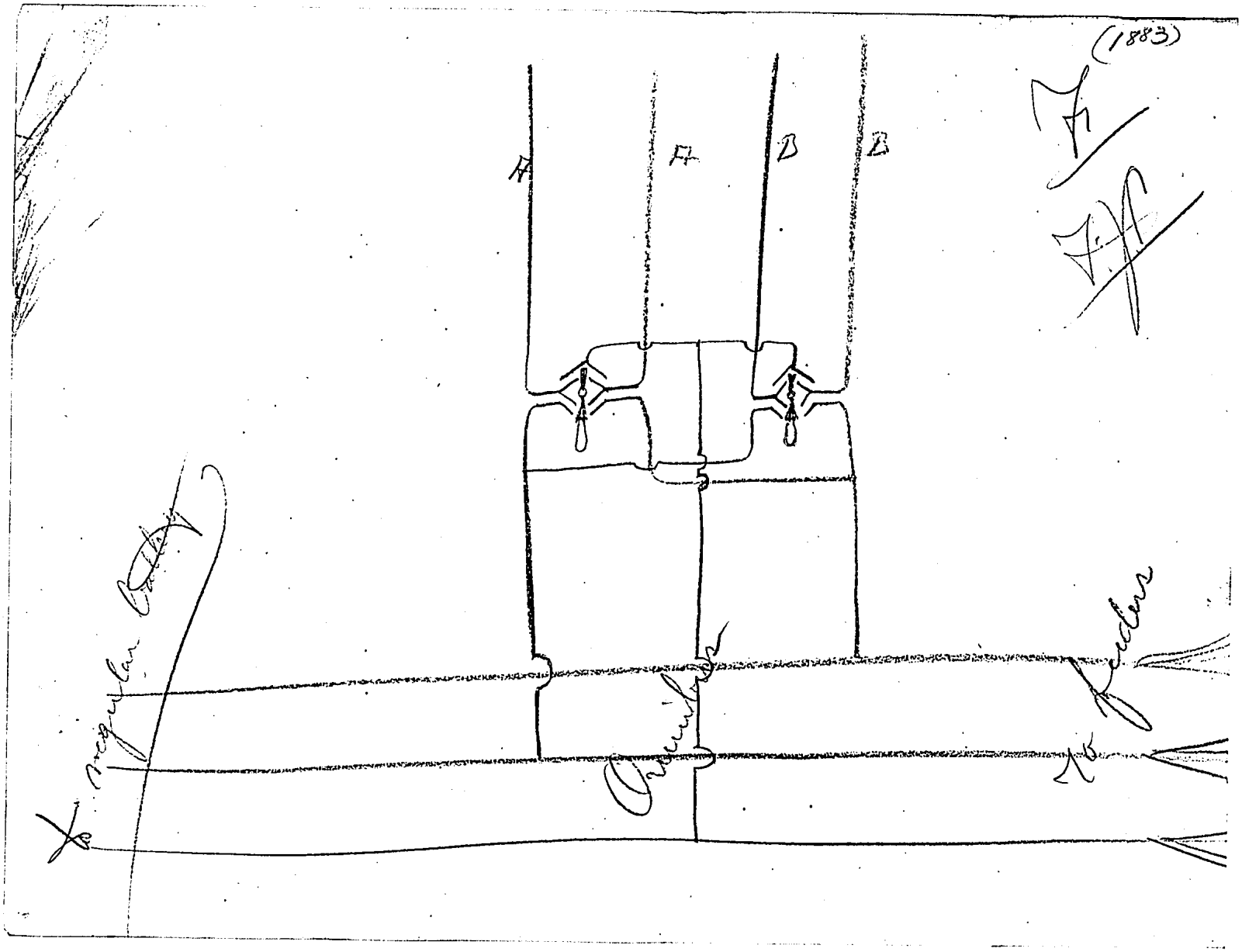


(1883)

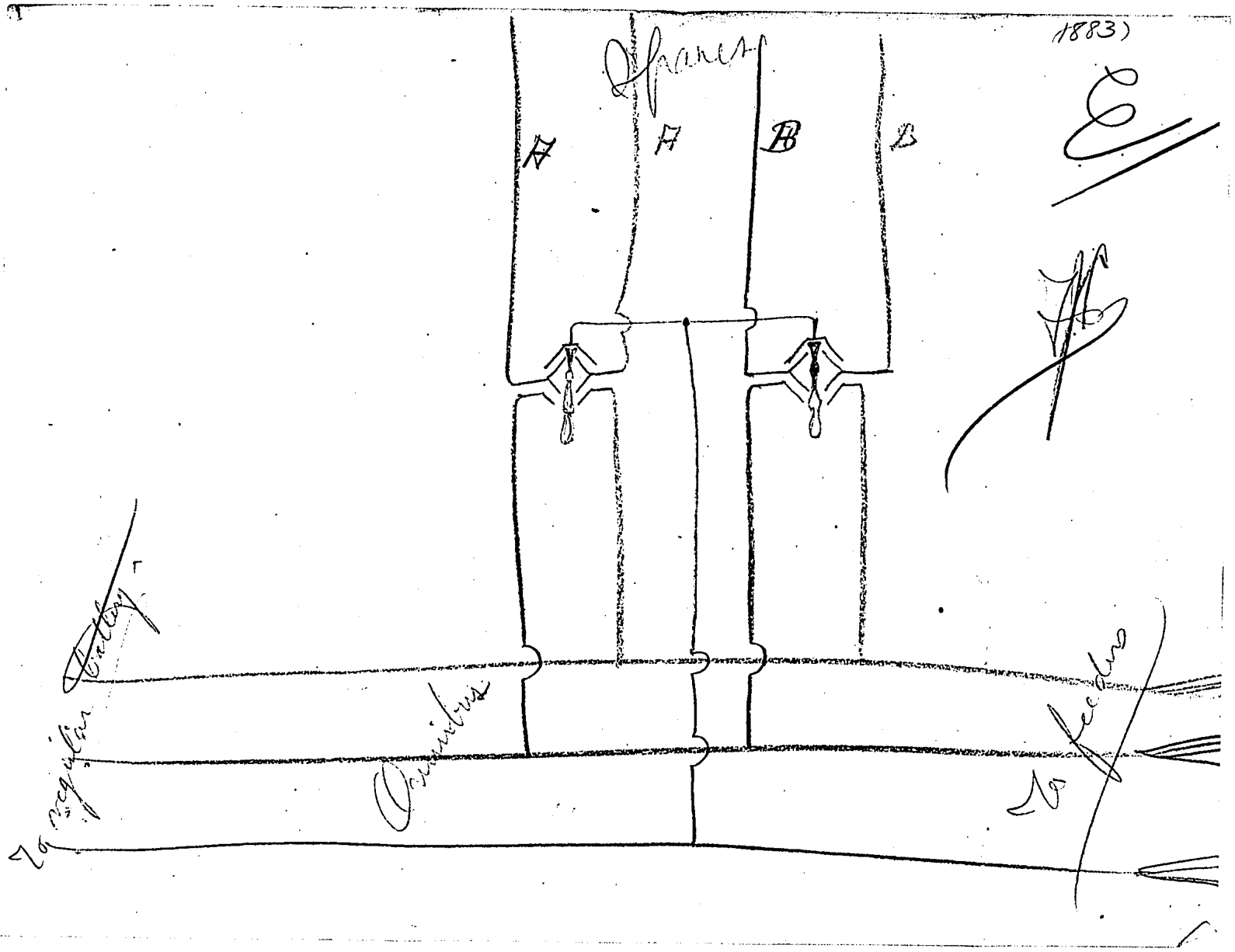
(1883)


A plane
B plane
Aimant régulier en fer à cheval
Omnibus wires
To Pocket

(1883)

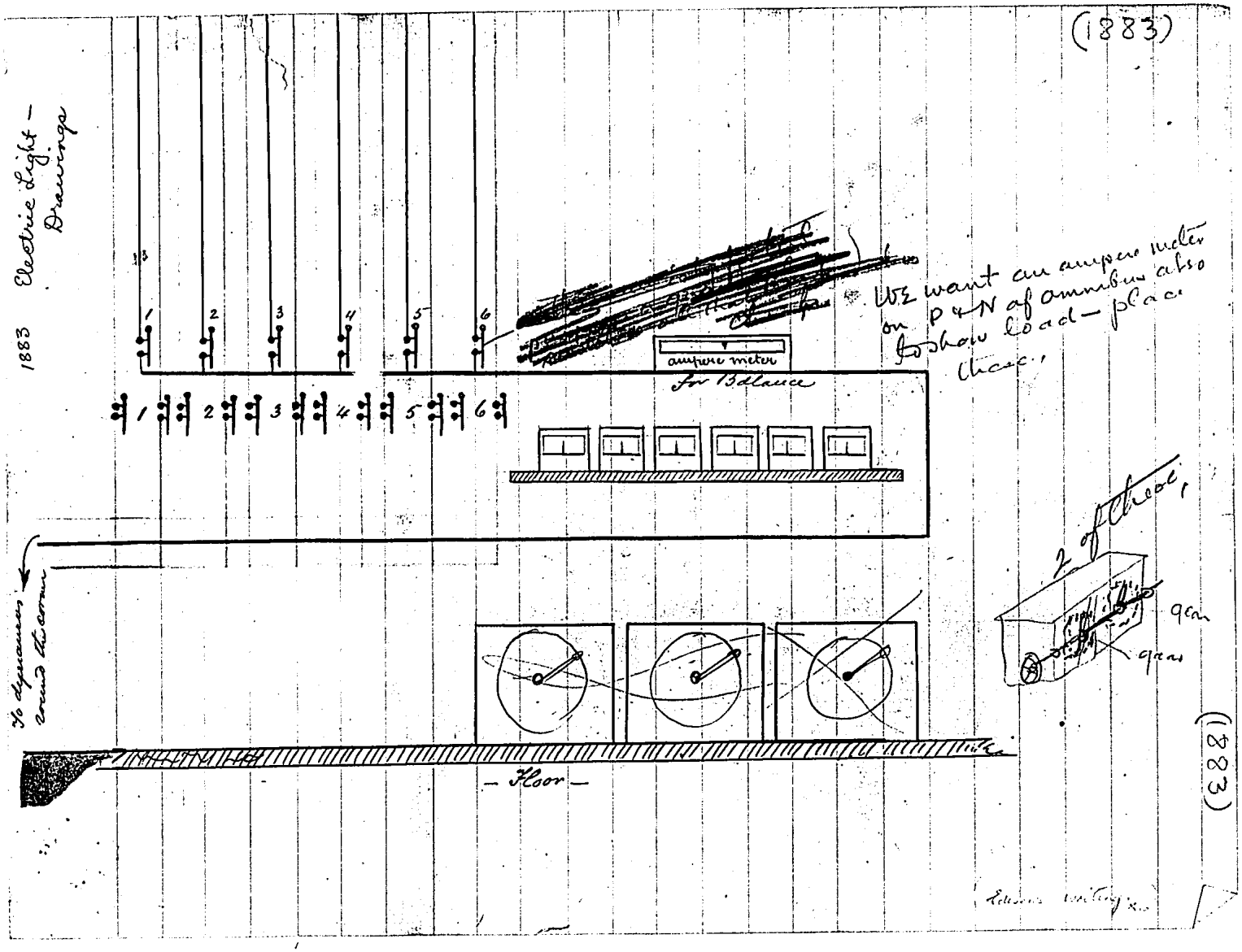


1883)



(1883)

1883 Electric Light – Drawings



(1883)

28

W. S. Andrews

Plans for Switches

THE EDISON ELECTRIC LIGHT CO.,
65 FIFTH AVENUE.

5

New York, ... 188

# Test	Description	Discs	Fall per min. in °C	Temperature in Bolt hole when Stopped	Increase in Temper. °C	% of fall per min. Stopped	Fall per minute running in °C	% of fall per min running	Approximate absolute increase
1	Regular #12 loose felt	·01[illegible]"	·2 ± 30%	62	42	·52			
2	#12. with Iron Sleeve loose felt	·0126	·14 ± 10%	69	52·5	·28			
3	#12. with painted discs. New Felt.	·0125	·05 +30% −50	43	53	·1			
4	Reg. #12 New felt.	·0135	·08 ± 15%	68	50	Outside ·13 ·16	·27	·55	99·5
5	#12 with painted discs loose felt	·0125	·1 ± 10%	43	55	·18			
6	#16 Regular loose felt.	·0125	·05 ± 5%	Corrected for diam. 61·5 64	Corrected for diam. 38 40·5	·12			
7	#16 with Discs ·0065 New felt	·0065	·019 ± 10%	Corrected for diam. 45·8 47	22·5 24	·08	·06	·20	34
8	#12 ordin. Bronze Sleeve New felt	·0126	·125 ± 5% ·075 ± 10%	48·5 41	52·5 46	·22 ·16	·24 ·3	·5 ·66	100 ± 5% ins out

Inside temperature means in bolt hole
Outside " " on surface

Summary: It is a question whether the #12 with an iron sleeve did increase much beyond a

THE EDISON ELECTRIC LIGHT CO.,
66 FIFTH AVENUE.

New York, ... 188

Landmaaling og nivellering

Harrison Ave.
785.

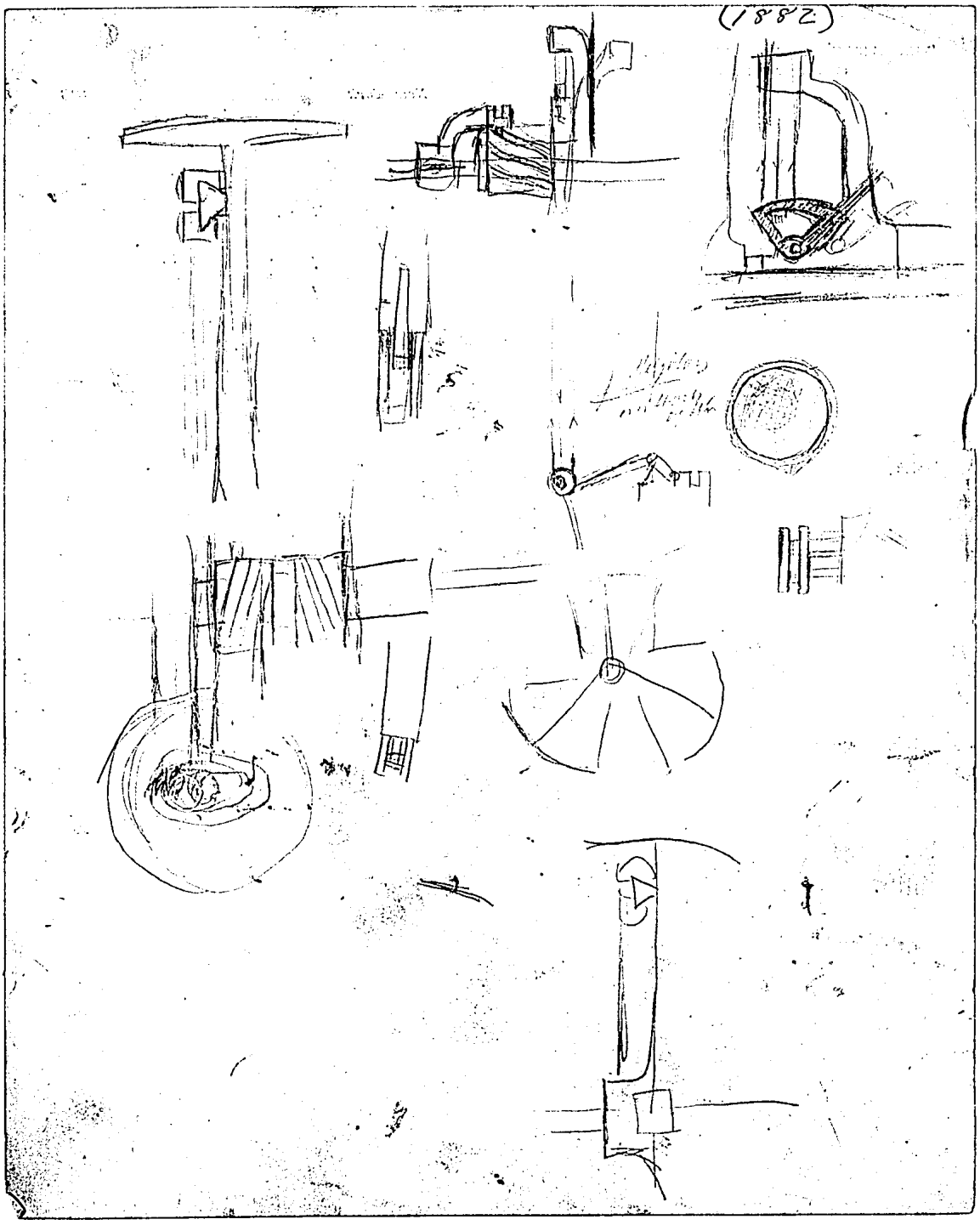
234689
179344
163887
16385

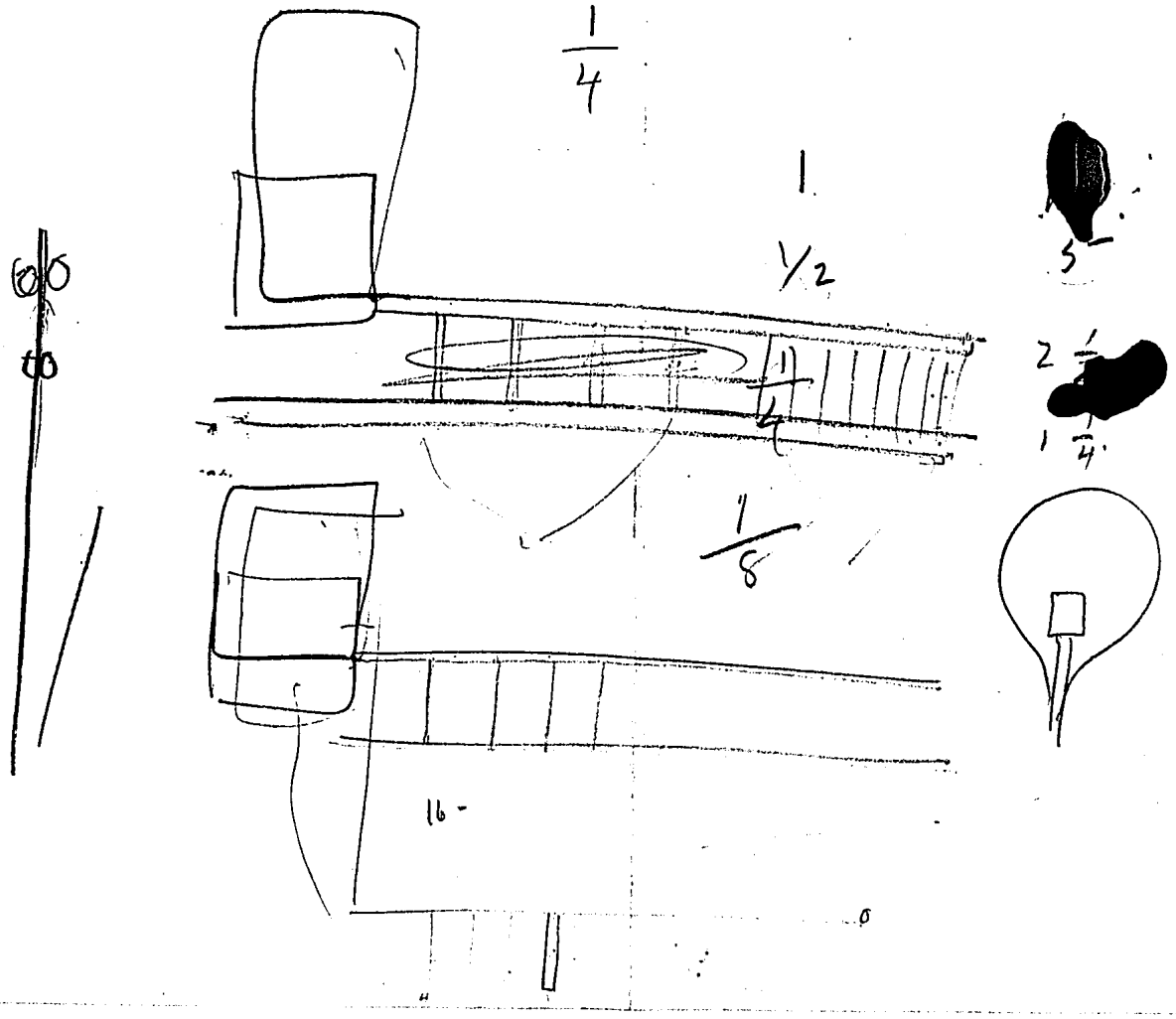
Kimm
Romeo.

$\frac{48}{1}$ $\frac{72}{5}$ $16\frac{1}{3}$

Thomas

(1882)




1/4
1
1/2
5
2 1/4
1 1/4
1/8
16

[ON BACK OF PRECEDING PAGE]

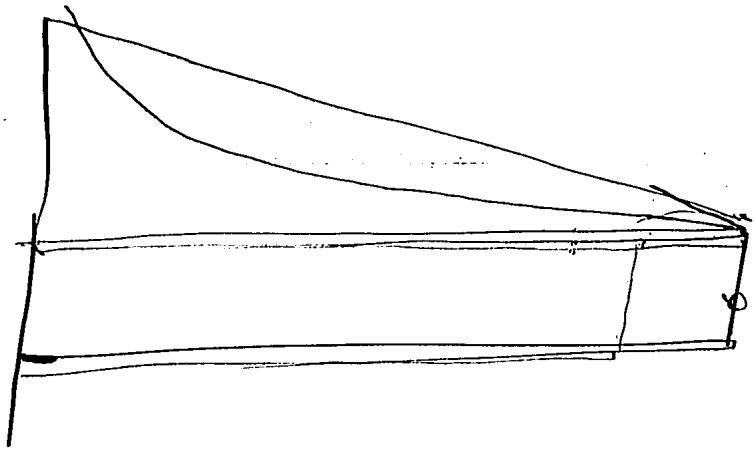
The Edison Electric Light Company,

65 Fifth Avenue,

Norvin Green, Pres.
S. B Eaton, Vice-Pres.
E. P. Fabbri, Treas.
C. Goddard, Sec'y.

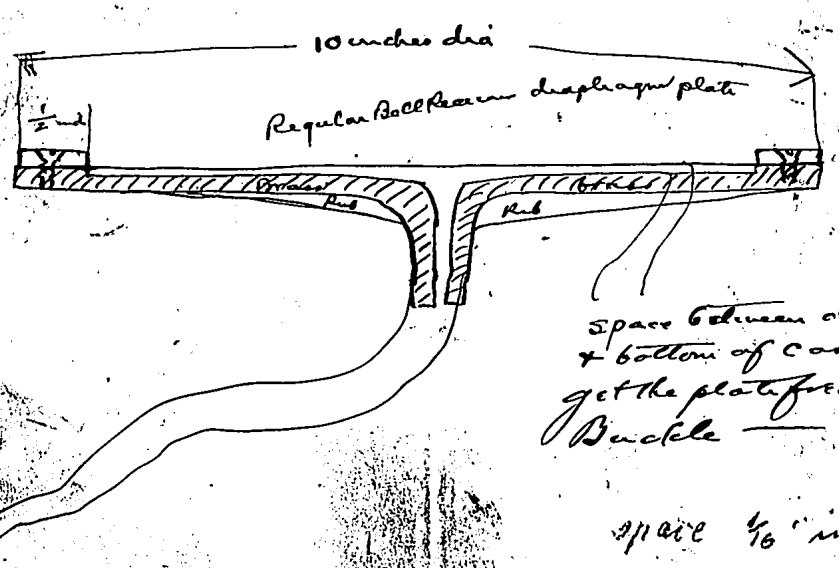
New York, ... 188

~~Two hundred and~~ ~~some odd skeletons that~~
~~do not seem to have any date~~
~~to them~~ ~~S. C.~~



(1885-02-09)

John Ott =



space between diaphragm & bottom of case 1/64 inch - get the plate free from Buckle

space 1/16" in place of 1/64 as you mentioned its can change if you wants

Form N. N. 100-3-19-84.

.....188

THOS. A. EDISON CONSTRUCTION DEPT.,

No. 65 FIFTH AVENUE, No. 1.

NEW YORK,

Dear Sirs:

Please find under same cover Invoices duly certified as correct by me from parties named below:

DATE.	NAME.	AMOUNT.	APPROPRIATION.

Yours Truly,

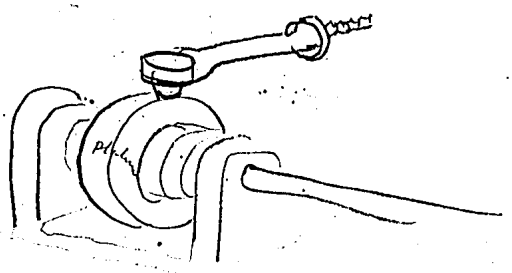
.....*Supt.*

Telephone Sketches

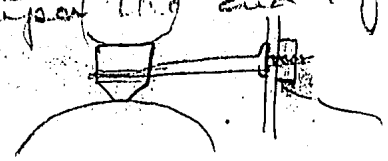
(1)

(1884)
Chalk Telephone

John please make a cylinder of brass covered with platinum to go in place of the Chalk. The platinum wheel should be the



same diameter as the Chalk is when turned up - use thick platina so as to get a perfectly true & polished surface - The pen connected to the diaphragm is to hold the Chalk which may be the same size as you have already a mould for thus you can mould the cylinder this size and put a cup on the pen platinized inside & split clamp - taper the end of the Chalk thus



[Form T. 2000-12-7-'83.]

THOS. A. EDISON,
Central Station Construction Department,
65 FIFTH AVENUE.

New York, ... 188

To .....

DEAR SIR:

I send you by ..... Blue Print of ..... on which I have marked in red pencil the portion of the town within which it is desirable that our Electric Light Central Station should be located. I shall be glad if you will obtain for me information on the following points concerning any lots for sale within the area marked:

Exact size of each lot.

Price of each lot.

Nature of soil.

Whether each lot is level.

Elevation of each above water-line.

If there is a building on any of the lots, and whether wood or brick; and for what purpose it has been used.

Full dimensions of building, including height of same, thickness of walls, size of rooms, whether more than one floor.

Whether building in good repair.

When sending me this information, please return Blue Print with the position of each lot clearly marked on it.

It is not at all necessary that the lot for our Central Station should be located on a prominent street, where property is in great demand, and consequently very expensive. We desire a lot as near the centre of lighting as possible, and such a lot can usually be obtained in a back street or alley, where property, as a rule, is comparatively cheap.

Please reply as promptly as possible, as it is impossible for me to proceed with the estimate until I receive the above referred to information.

Yours truly,

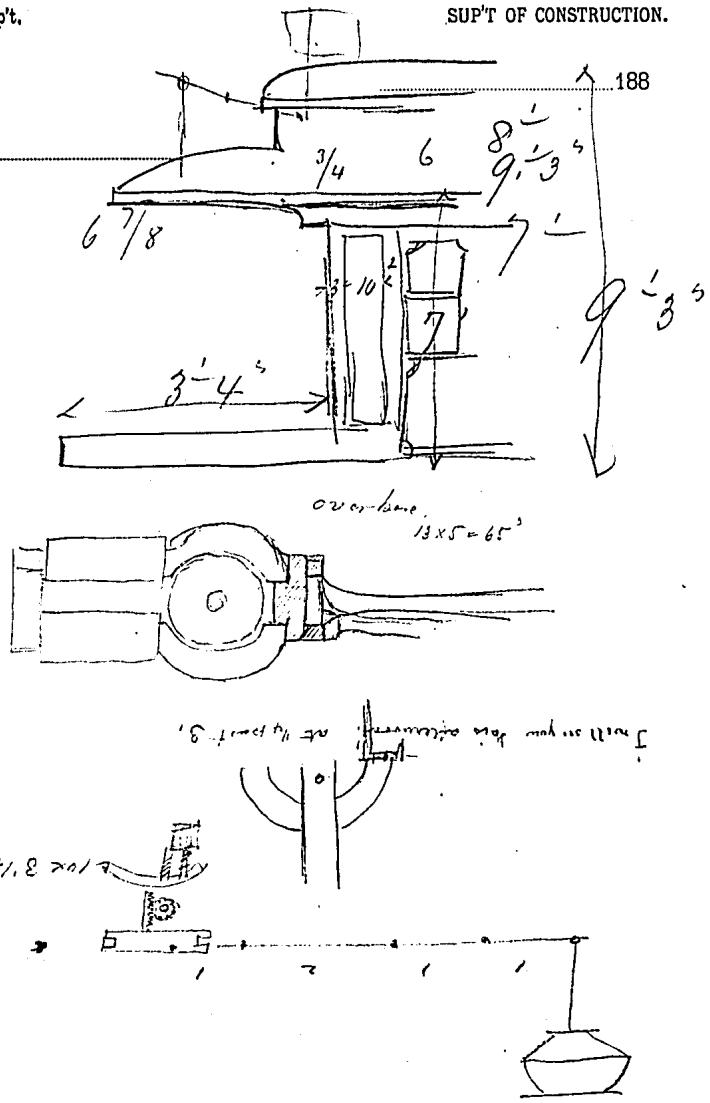
.....

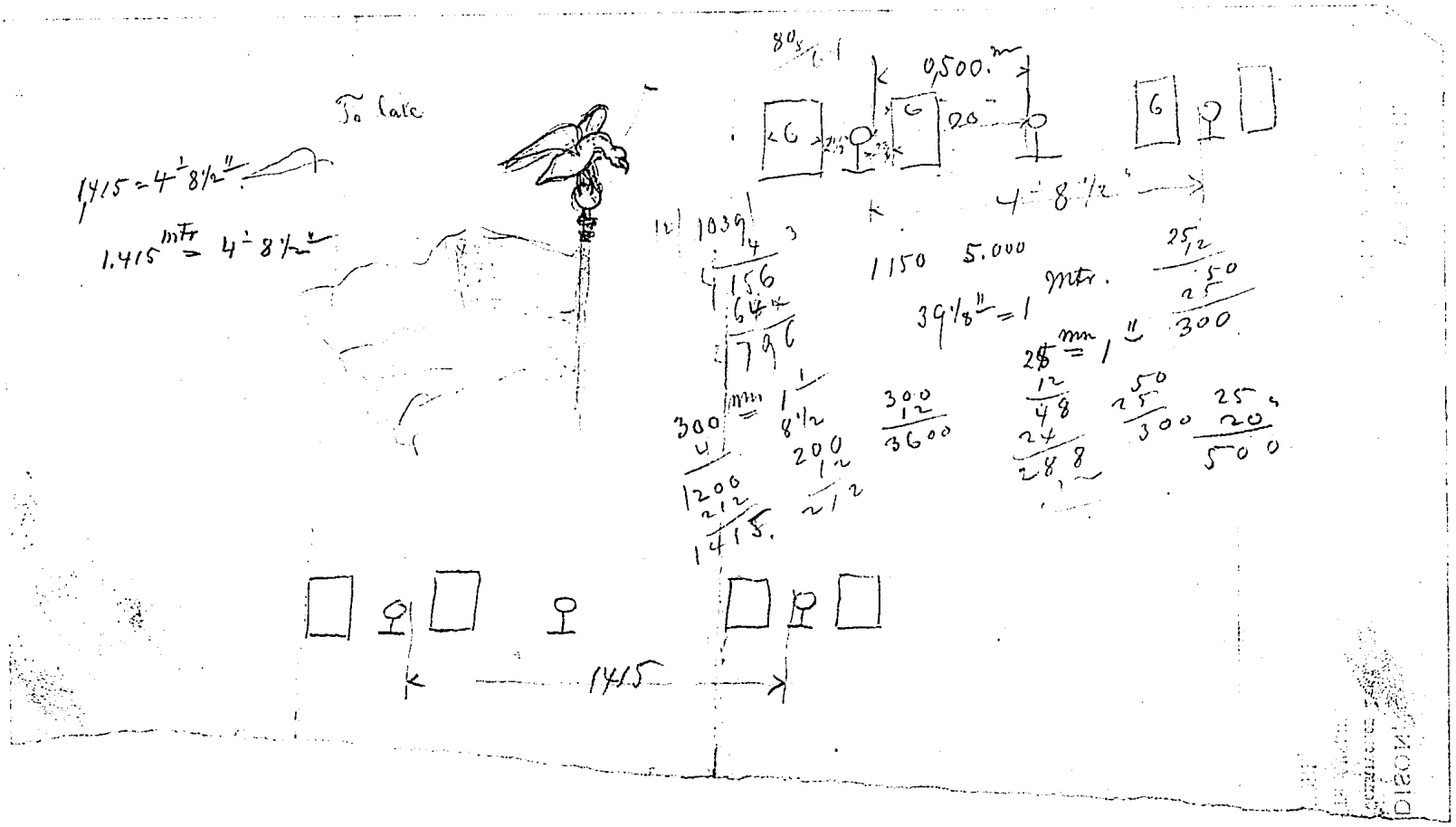
Form M.

DISON,
Construction Dep't.
TH AVENUE,
YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION.

188




To lake
1.415 = 4' 8½"
1.415 mtr = 4' 8½"
0.500 m
4' 8½"
1.415

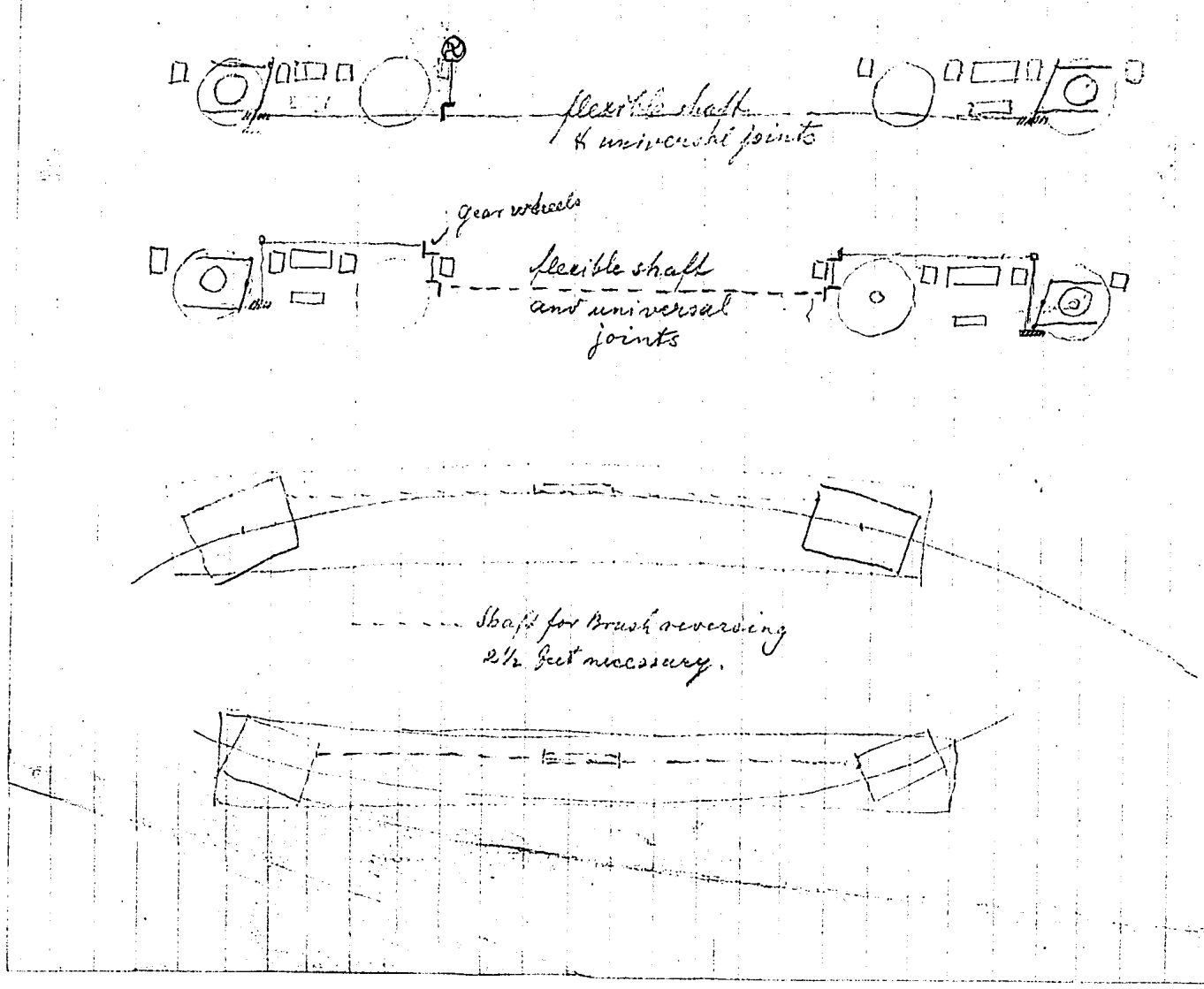
THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

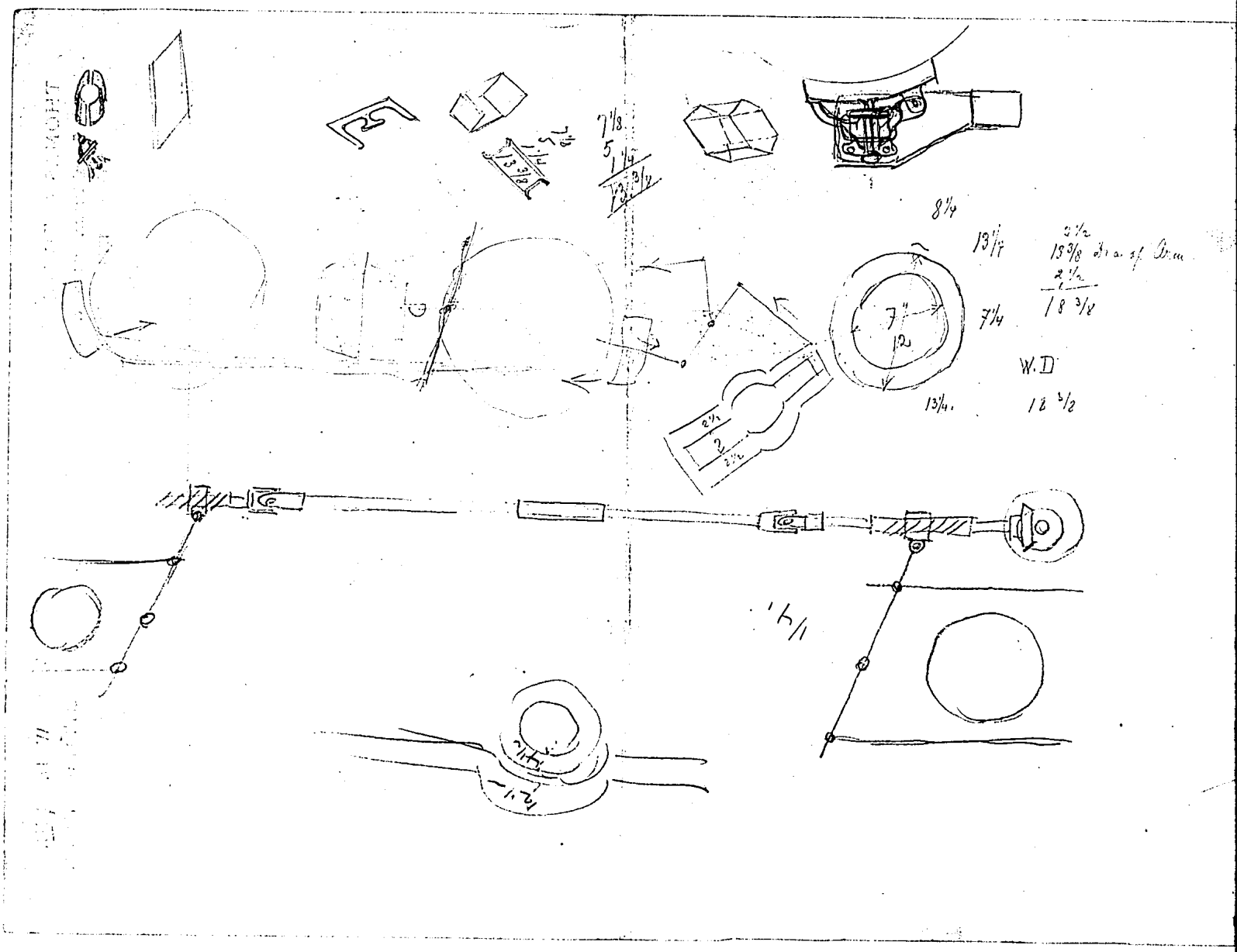
*Address reply to*_____

Form M.

W. D. RICH,
SUP'T OF CONSTRUCTION.

_____188

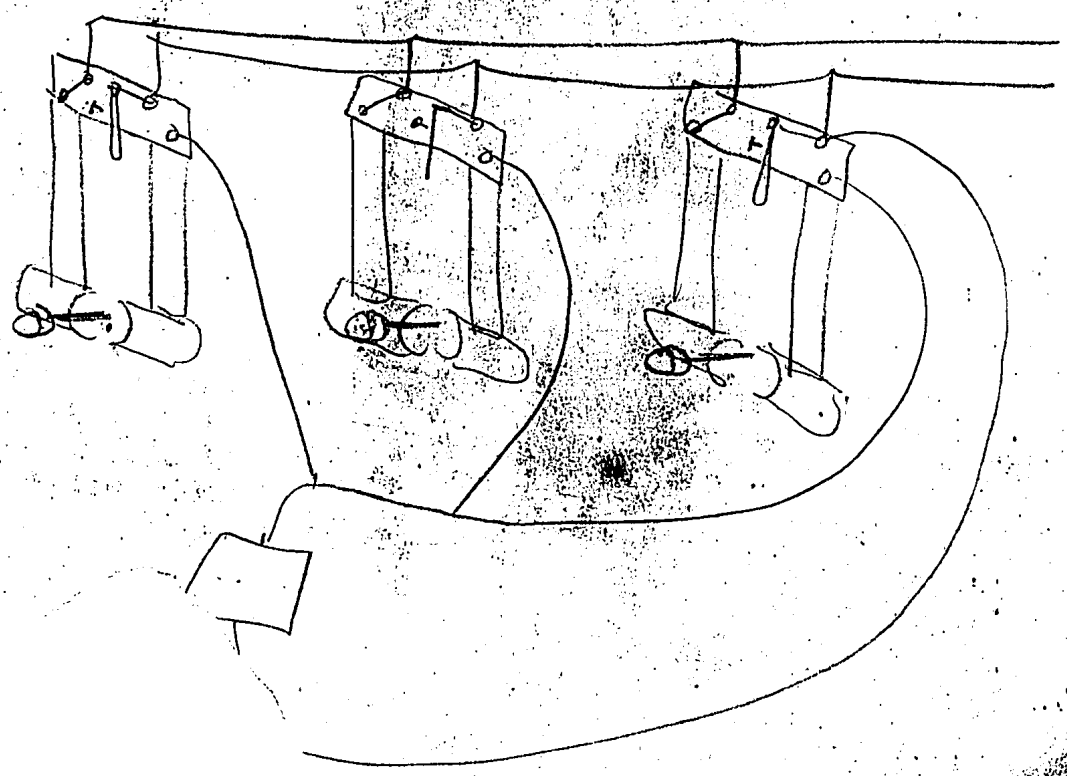



7 1/8
5 1/4
8 1/4
13 1/4
7 1/4
13 3/8 dia. of Drum
18 3/8
W.D
13 1/4.
18 3/8

(1885)

THOMAS A. EDISON,
No. 65 FIFTH AVENUE, NEW YORK, 188

When 3 machines are placed together, they should be connected thus providing none of the pulleys face each other



(1883)

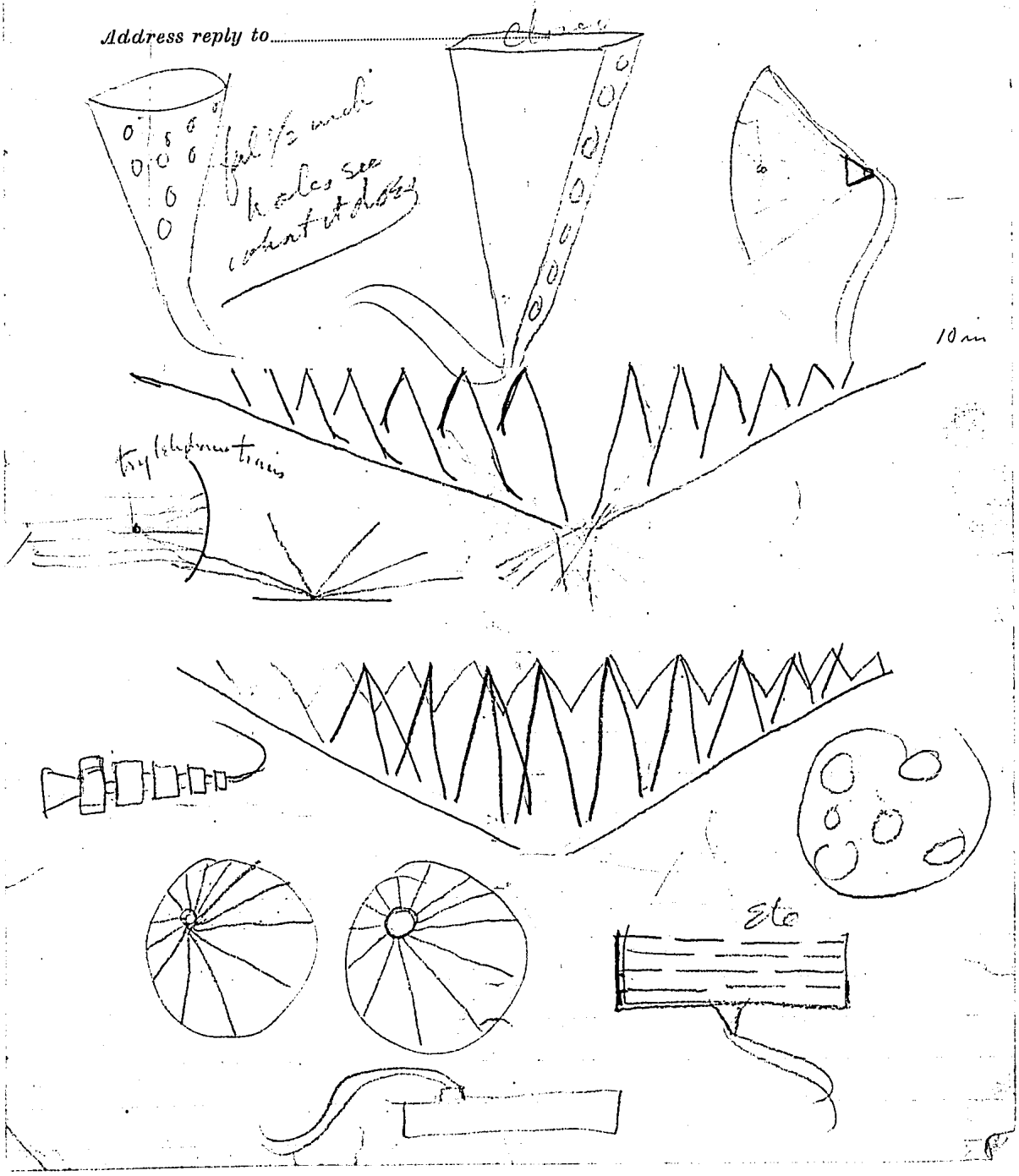
Form M.

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION

.....188

Address reply to.....



Electric Pen.

1884-12-01

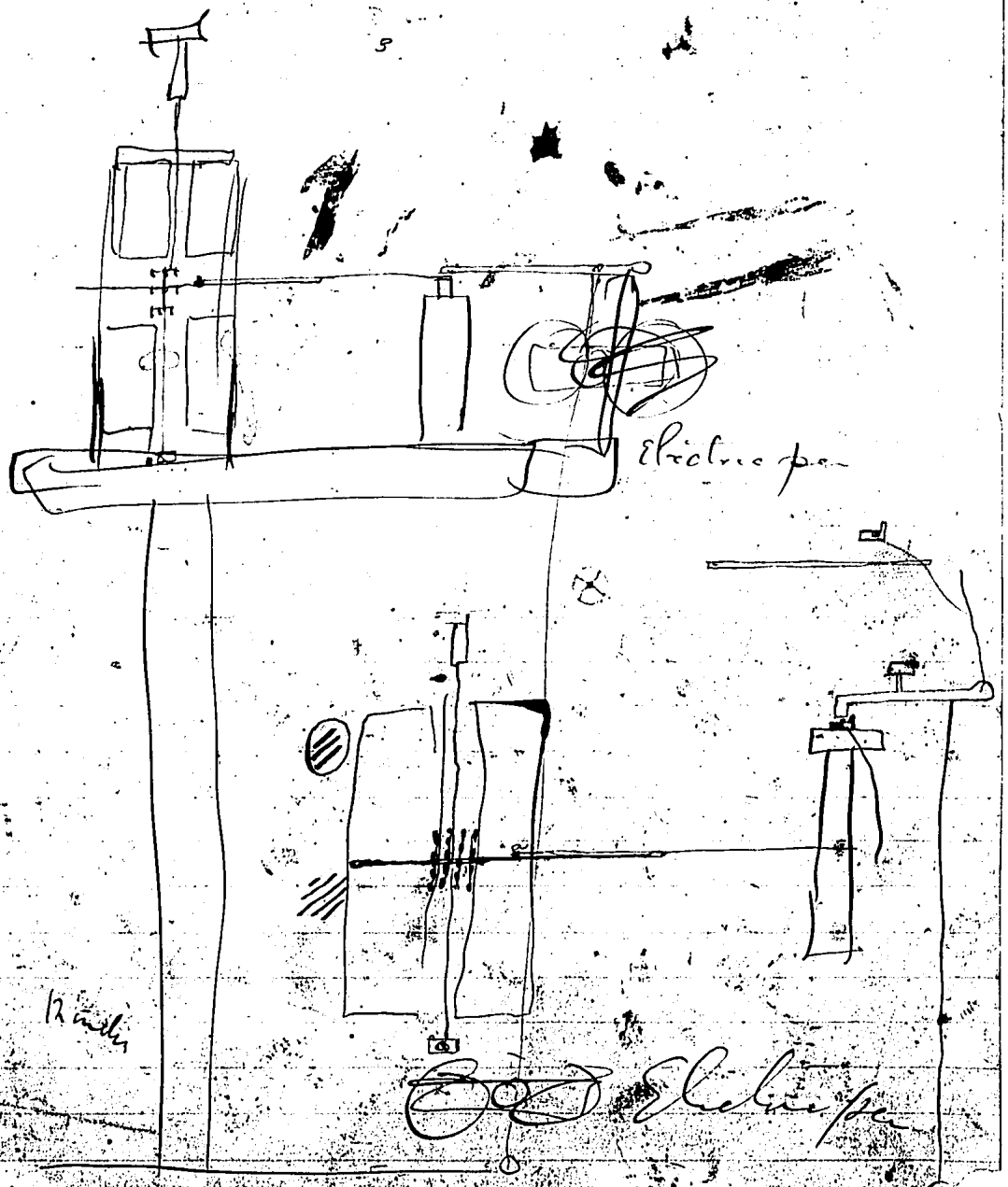
Form M.

THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION

.....188

Address reply to.....



Primary Bat.? 1884-12-01

Form M.

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W. D. RICH,
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.....188

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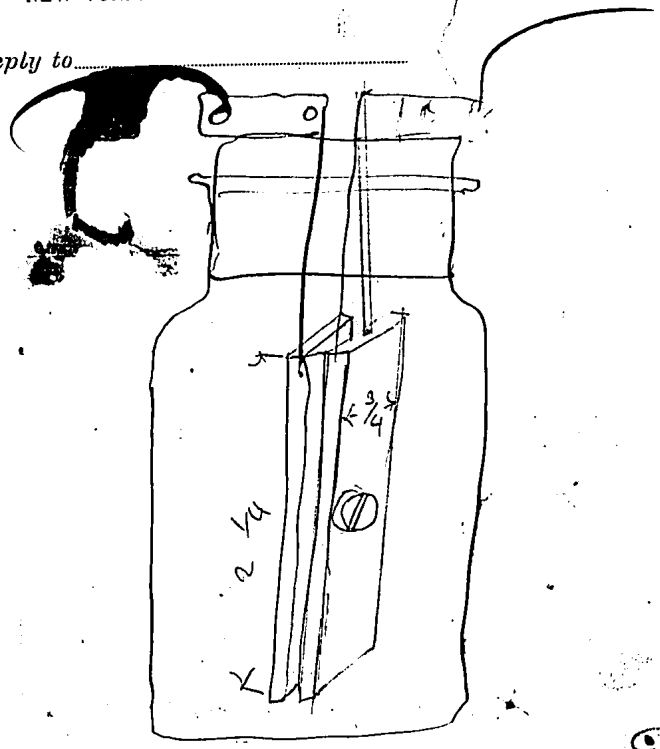

~~50 Lead~~ ×
~~50 Zinc~~ ×
50 Carbon
50 Tin
~~50 Brass~~ ×
~~50 Copper~~ ×
~~50 Iron~~ ×
~~10 Cadmium~~ ×
10 Bismuth
~~10 Antimony~~ ×
10 Silver
10 Aluminum

20 Phosphide Iron
20 Phosphide Lead
20 Sulphide Lead
20 Sulphide Iron
20 Sulphide Copper
20 " Tin
10 Nickles " "

Make 20 more of Iron

1884-12-[illegible]

THOMAS A. EDISON,
Central Station, Construction Dep't,
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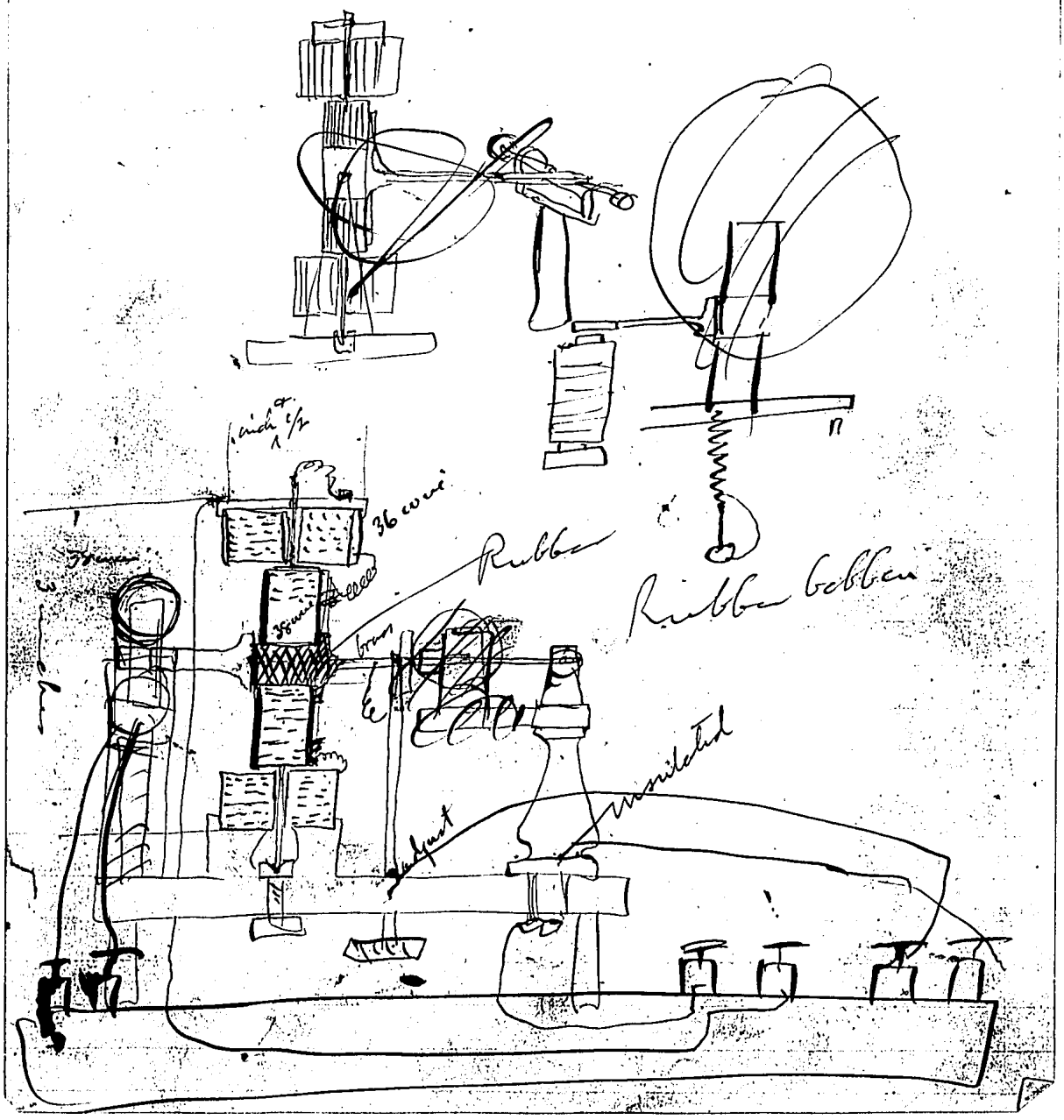
NEW YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION

..... 188

Address reply to.....



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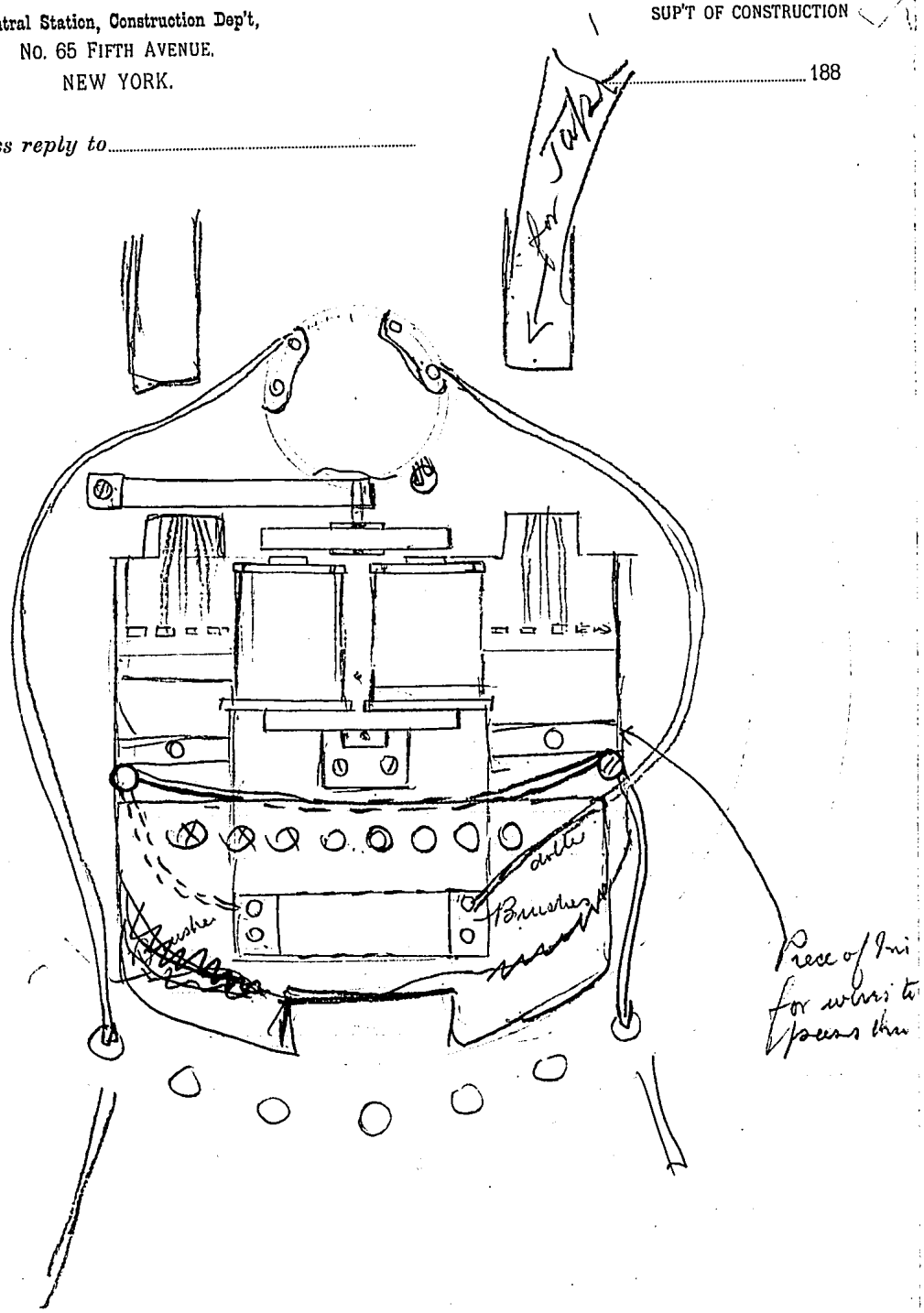
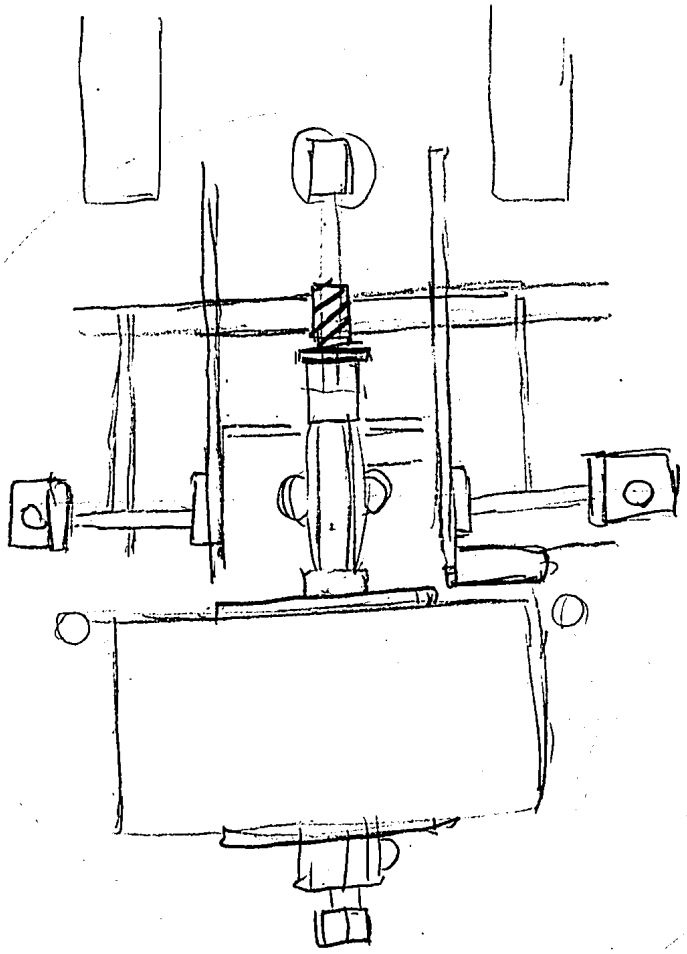
SUP'T OF CONSTRUCTION

.....188

Address reply to.....





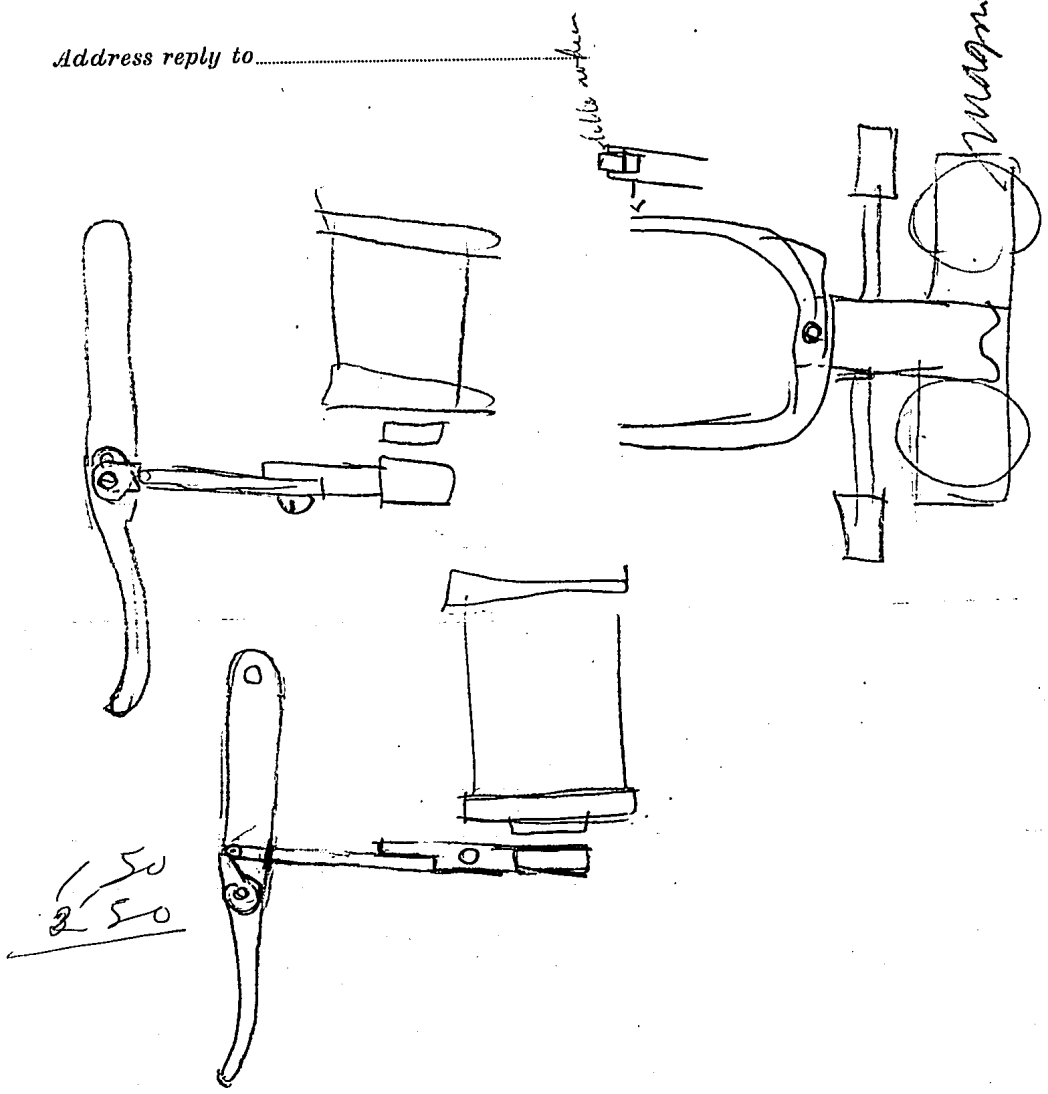
Form M.

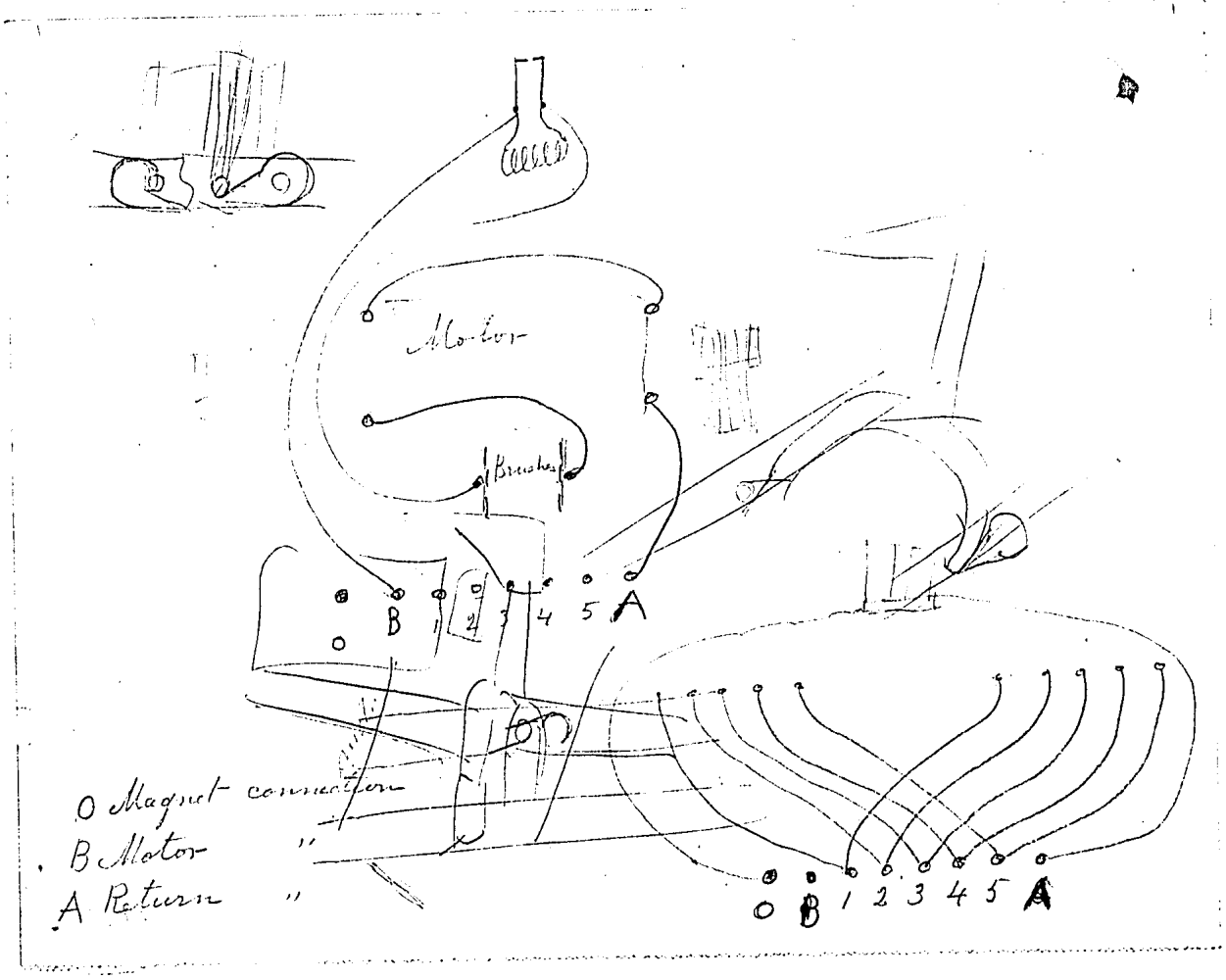
THOMAS A. EDISON,
Central Station, Construction Dep't,
No. 65 FIFTH AVENUE,
NEW YORK.

W. D. RICH,
SUP'T OF CONSTRUCTION

..... 188

Address reply to.....




Motor
Brushes
B
1
2
3
4
5
A
O Magnet connection
B Motor "
A Return "
O B 1 2 3 4 5 A

Form N. N. 100-8-10-84.

.....188

THOS. A. EDISON CONSTRUCTION DEP'T,

No. 65 FIFTH AVENUE, No. 1.

NEW YORK,

Dear Sirs:

Please find under same cover Invoices duly certified as correct by me from parties named below:

DATE.	NAME.	AMOUNT.	APPROPRIATION.

Yours Truly,

.....*Supt.*

(1884)
Edison Effect?

BERGMANN & CO.
ELECTRICAL WORKS,

Patentees and authorized Manufacturers of

EDISON ELECTRIC LIGHT FIXTURES AND APPLIANCES,

COMBINATION (Electric Light and Gas) FIXTURES A SPECIALTY.

DESIGNS AND ESTIMATES FURNISHED ON APPLICATION.

The Most Complete Facilities for all kinds of Electrical Work.

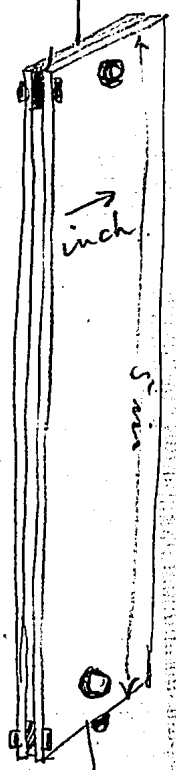
292, 294, 296 AND 298 AVENUE B,

New York, 188

John Ott

10/1000 platinum 3 inches long

6 of this

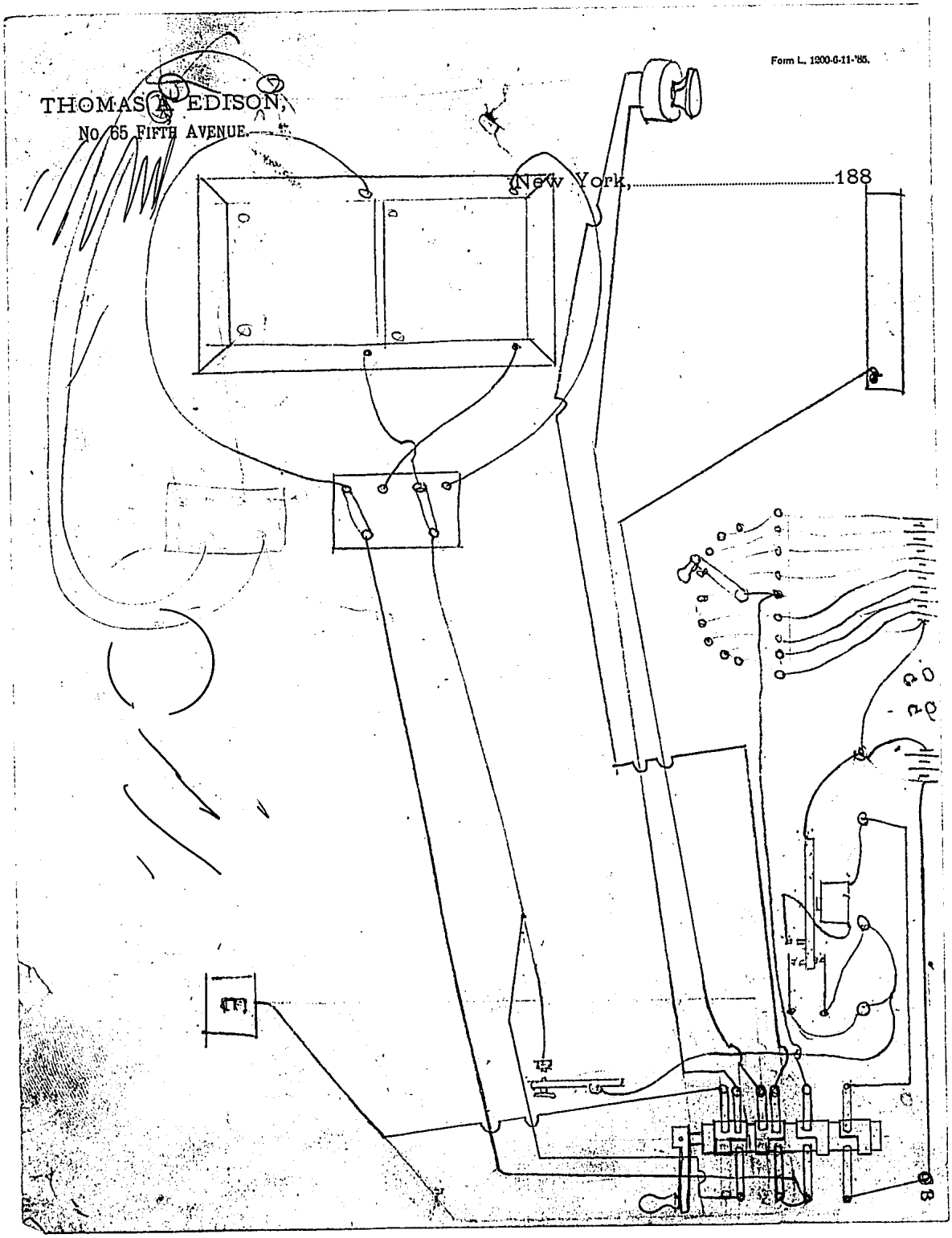


plates of Brass $\frac{1}{16}$ thick perfectly flat & Buffed all over with sharp Edges Buffed off & separated with hard rubber $\frac{1}{200}$ of inch 5/1000 - be sure they do not touch, dont lacquer them, then get a box and send them by mail to 10 m Holden Lamp factory pay full postage & tell him to put them in glass tube with platina coming out at each End & Exhaust to high Vacuum, heating glass to drive out moisture.

Form L, 1200-6-11-'85.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

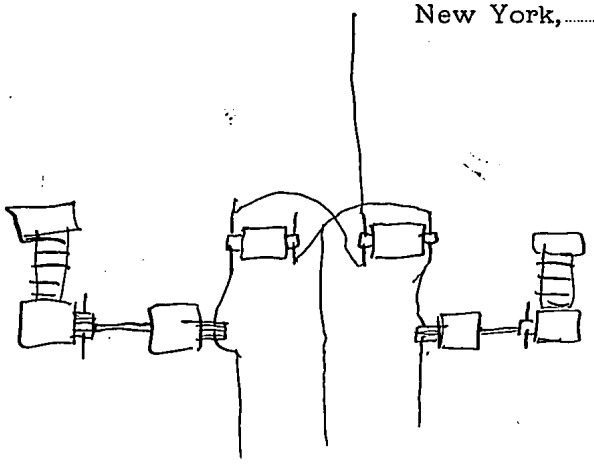
New York, ... 188



Form L. 1900-2-13-'86.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, ... 188

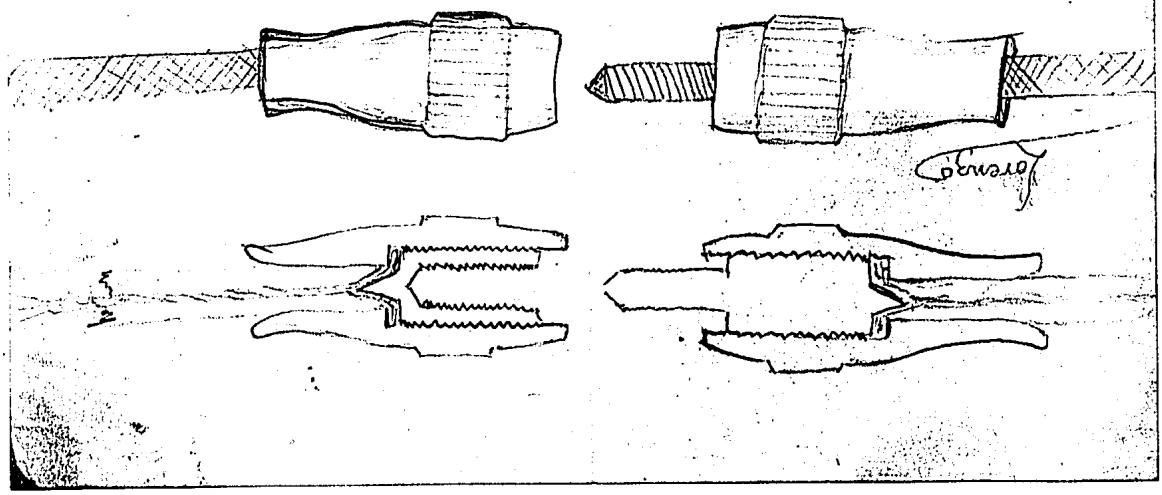


Form L. 1200-2-13-'80.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, ... 188

Castor Oil
Burgundy
Sulph. of Morphia



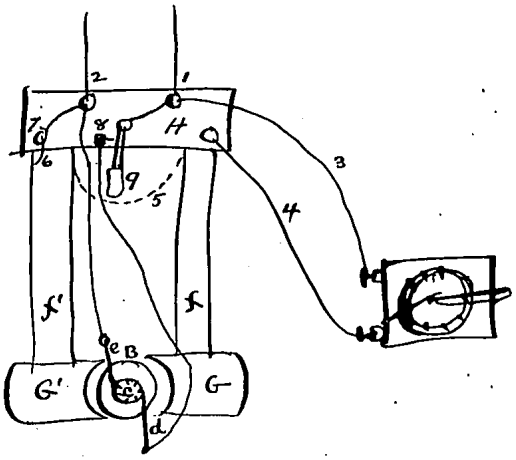
SK. 14

(1885)

THOMAS A. EDISON,
No. 65 FIFTH AVENUE,

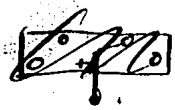
NEW YORK, 188

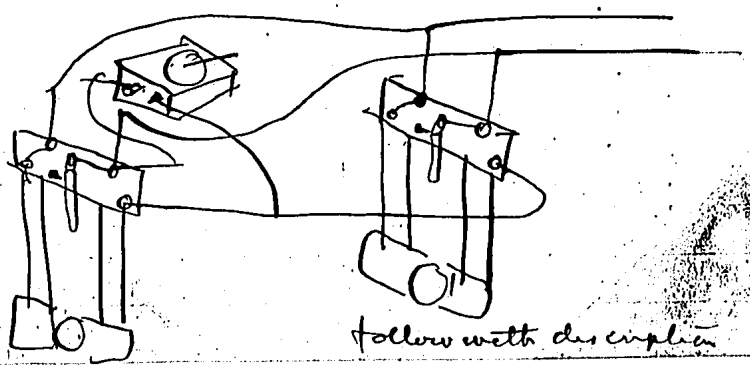
When a single machine is used the method of connecting is shewn in the annexed diagram



description here follows

~~If~~ When two machines are to be connected and the ~~belts are to~~ machines are to stand in the same way, that is to say when the ~~two~~ pulley does not face each other



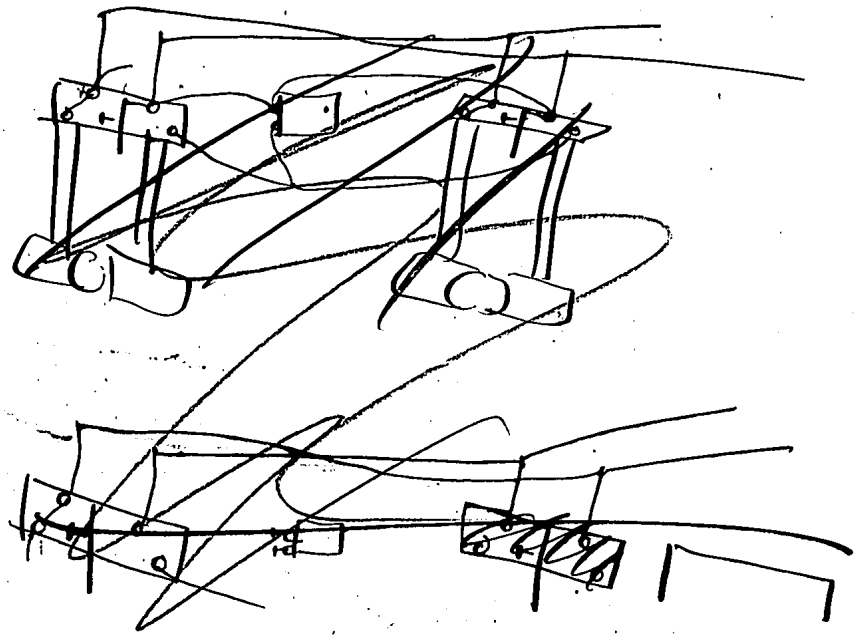


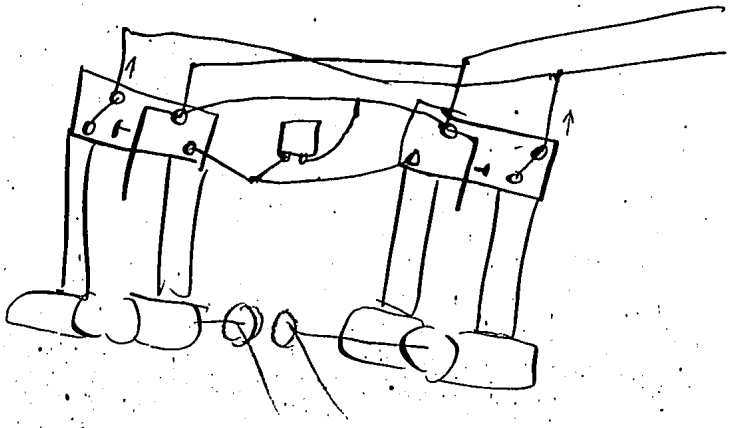
follow with description

THOMAS A. EDISON,
No. 65 FIFTH AVENUE, ~~NY~~

NEW YORK, 188

If the machines are to have their pulleys facing each other, ~~either~~ ~~both~~ the main wires ~~of the field wires~~ should be crossed thus

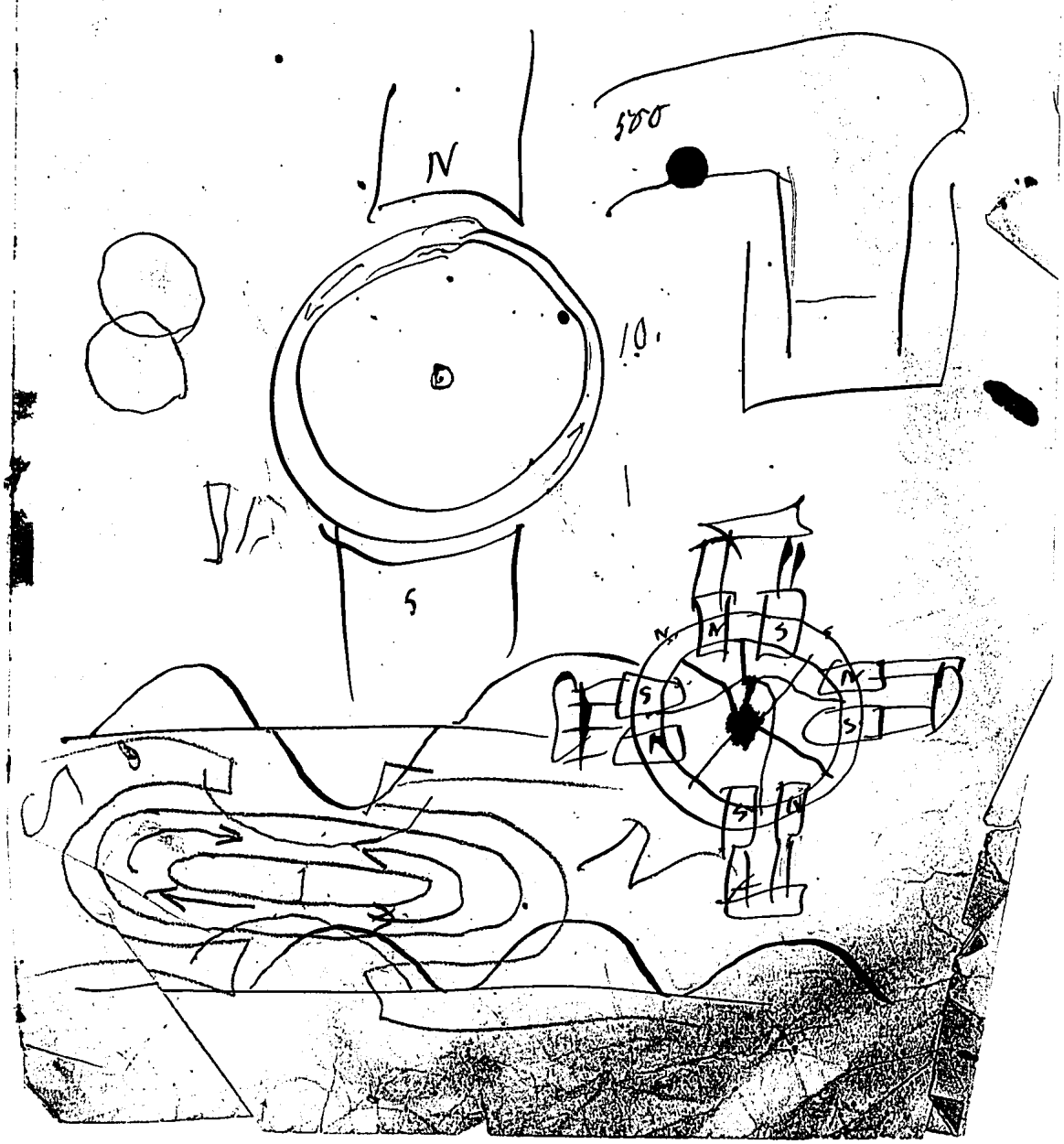




(1886) Form L. 1200-2-13-'86.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, ... 188

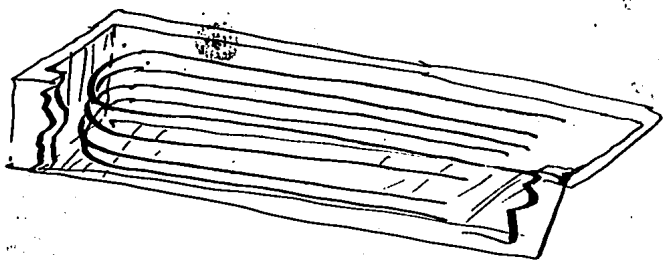


THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

Form L. 1800-8-13-'80.

(1886)

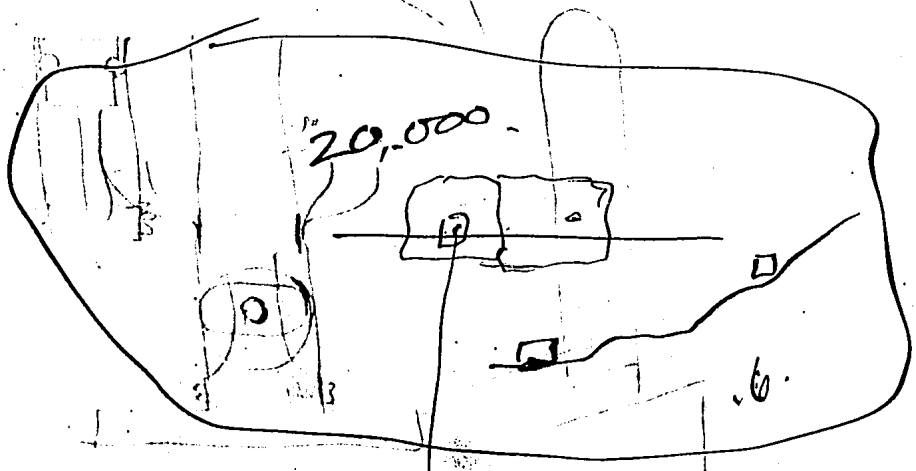
New York, ... 188

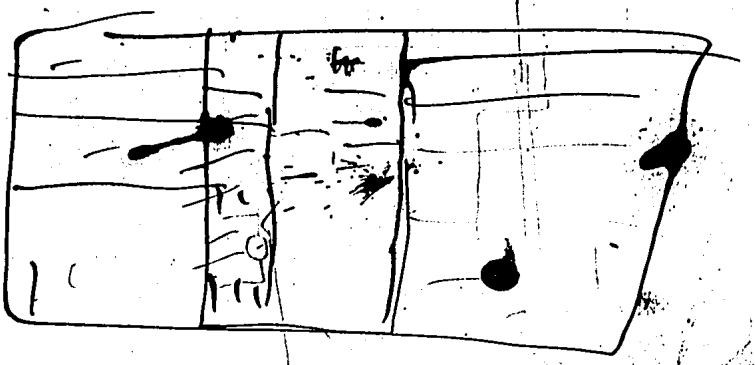


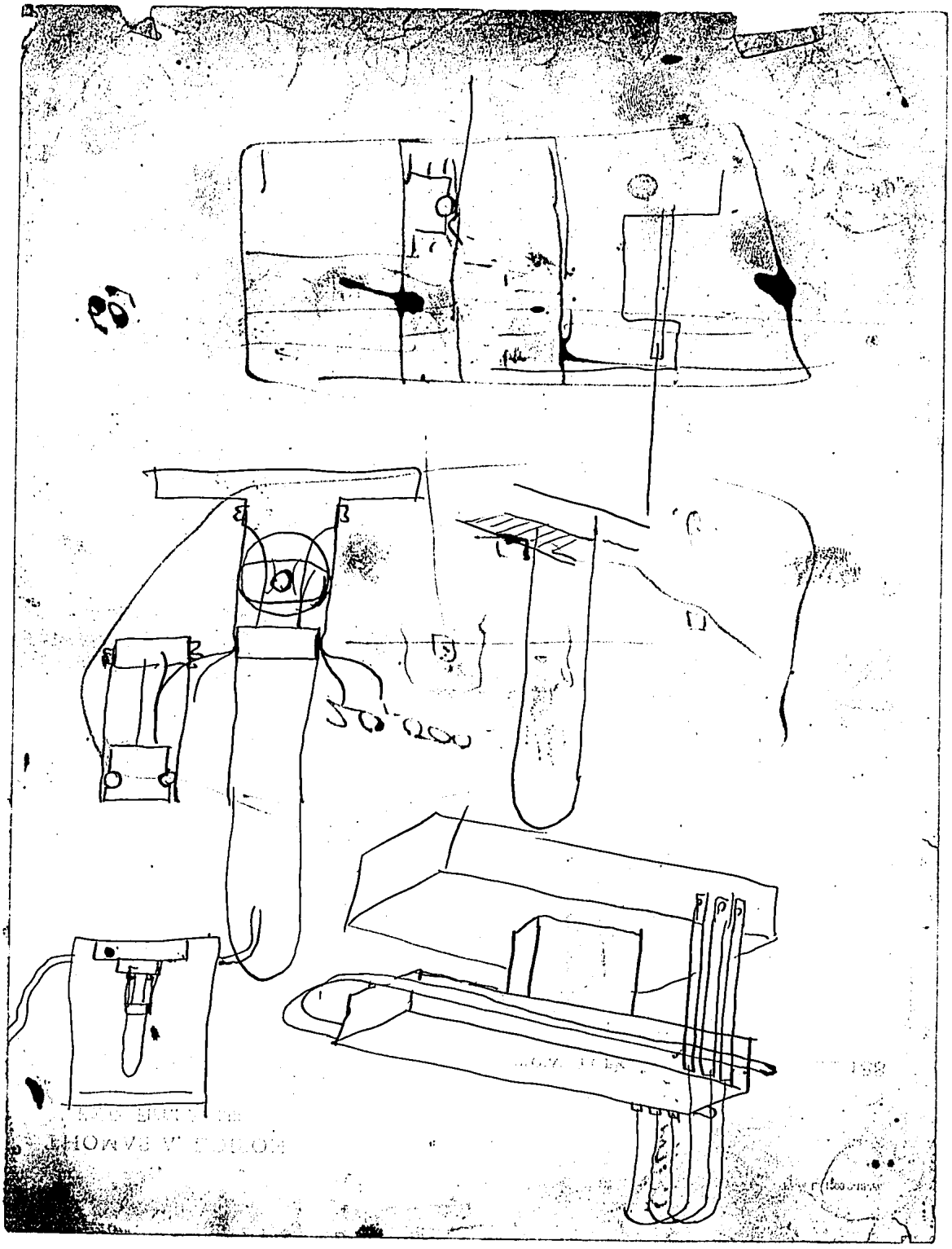
Form L. 1200-2-13-'86.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, ... 188



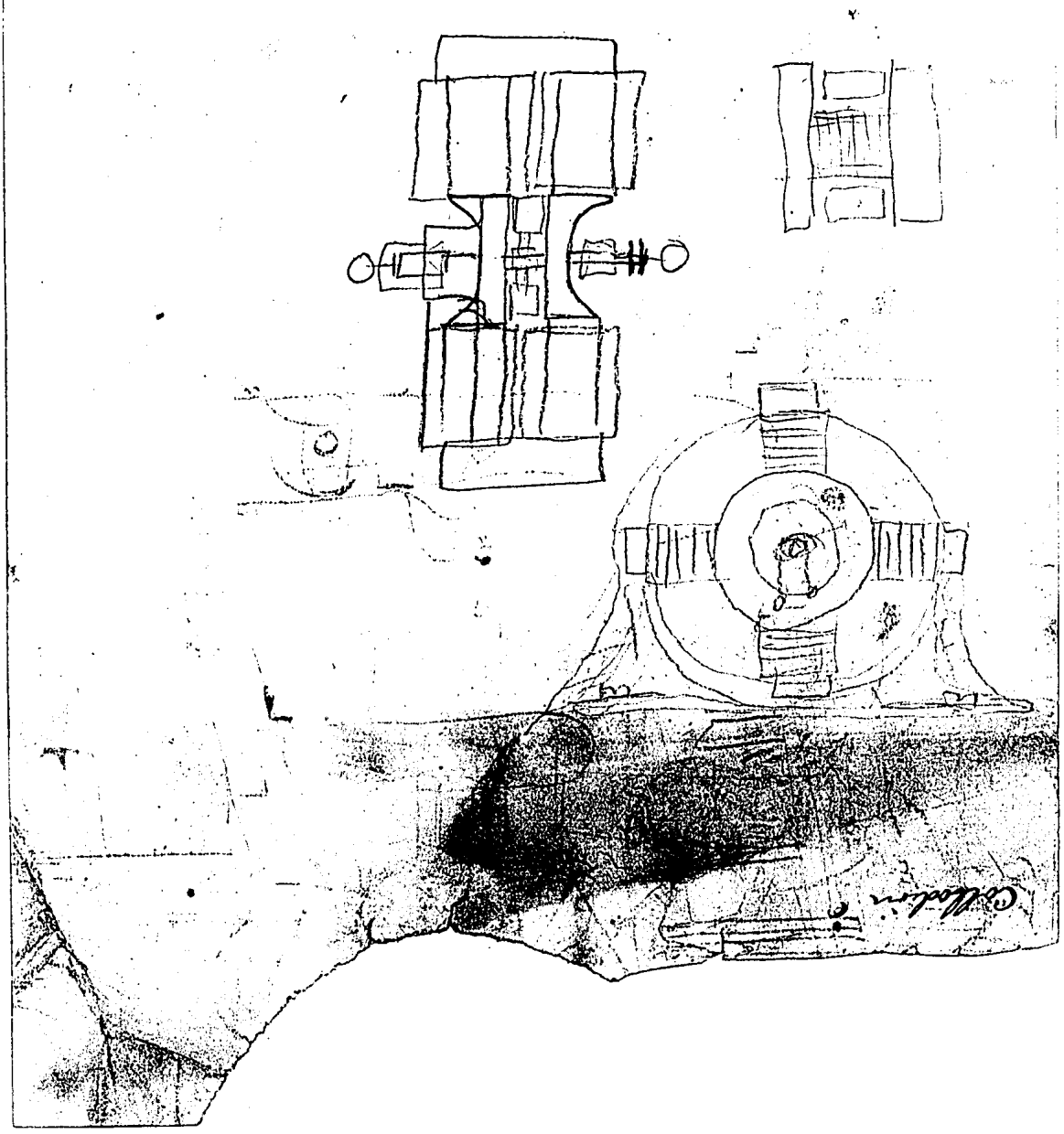


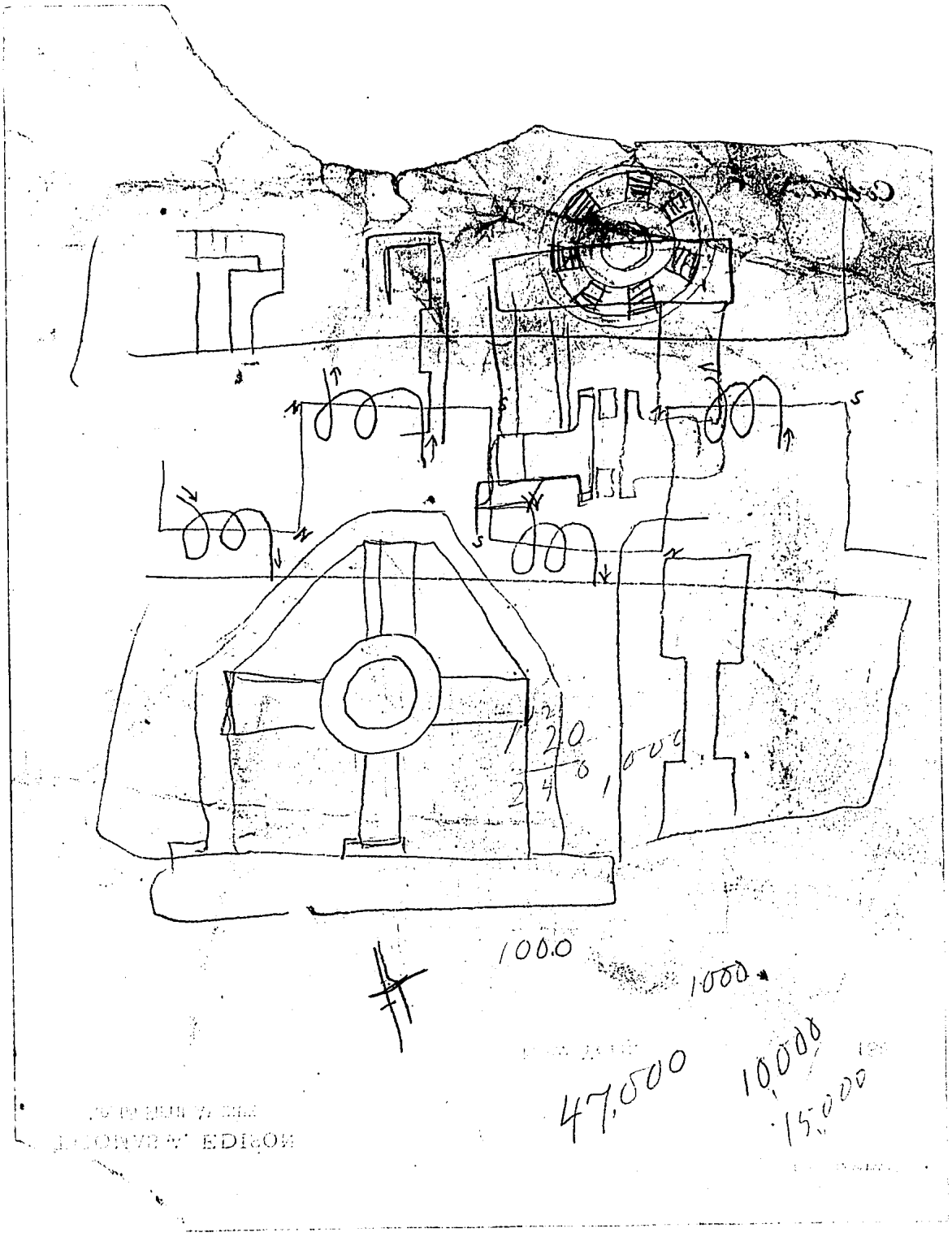


Form L. 1200-2-18-'80.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, ... 188




1000
1000
47,500
10,000
15,000

Per S. S. _____

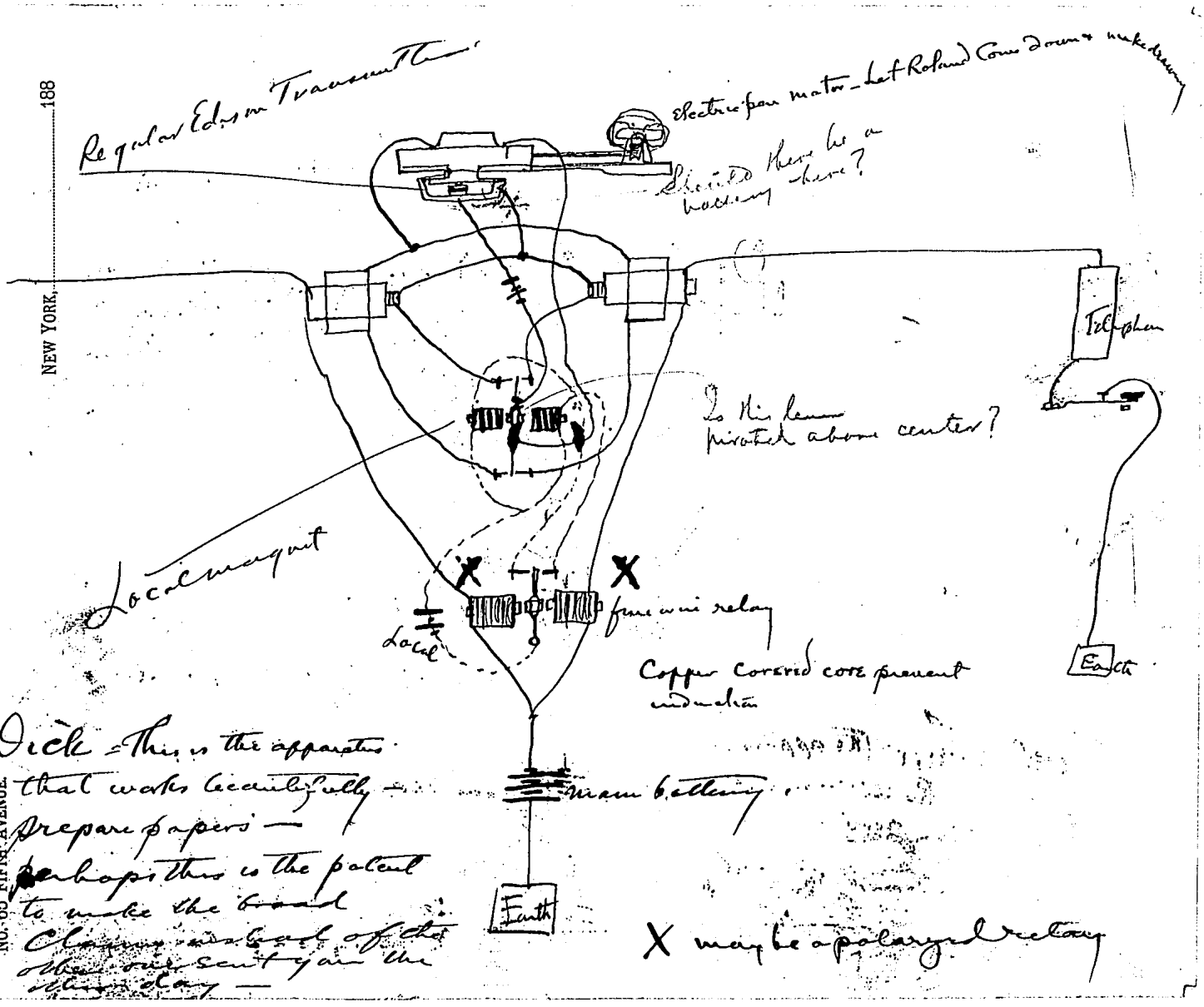
Via _____

188

NEW YORK,

CABLE ADDRESS—EDISON, NEW YORK.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.



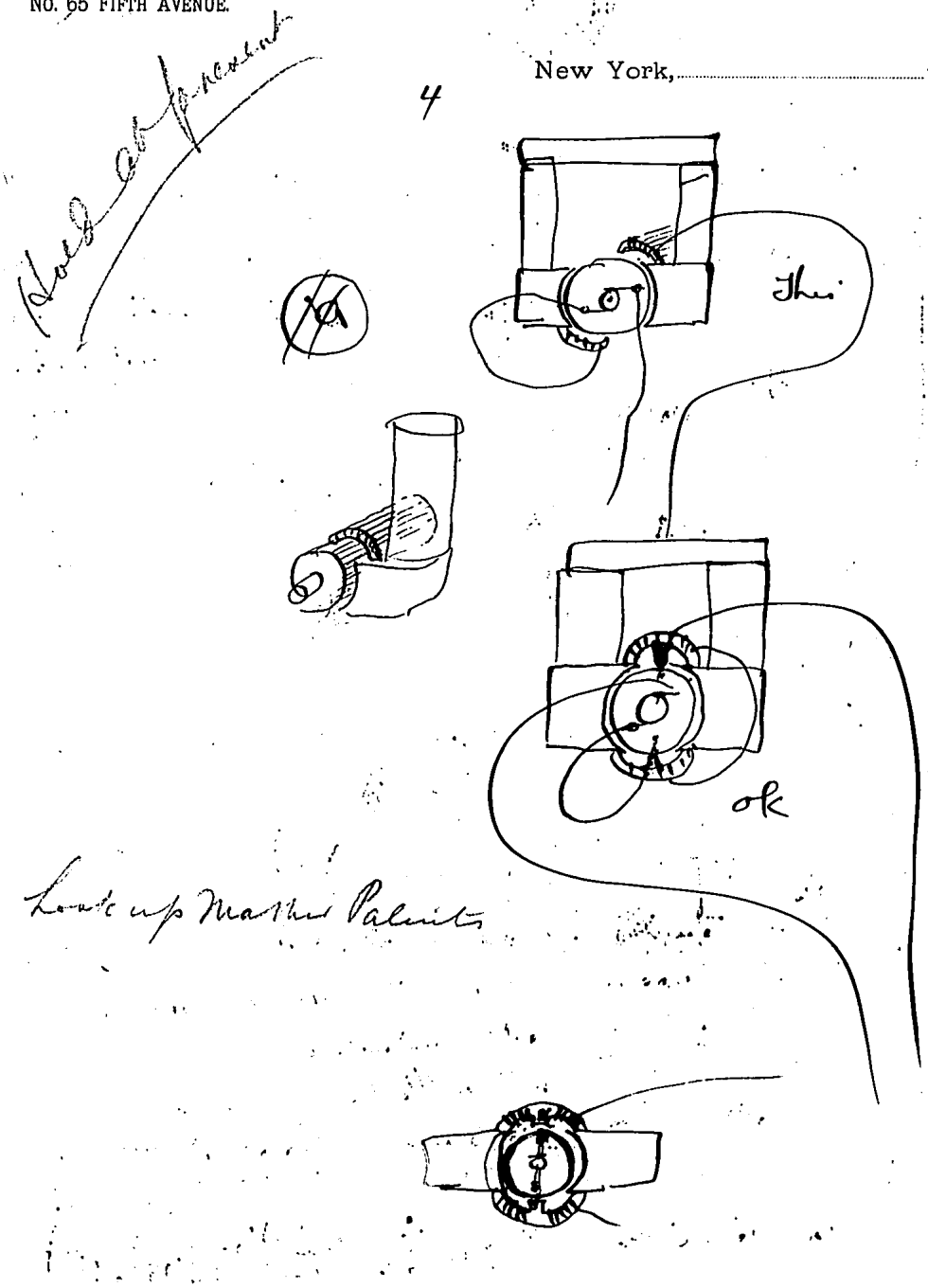
Dick - This is the apparatus that works beautifully - Prepare papers - perhaps this is the patent to make the broad claim - Get off the other one sent you the other day -

Form L. 1200-2-18-'86.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

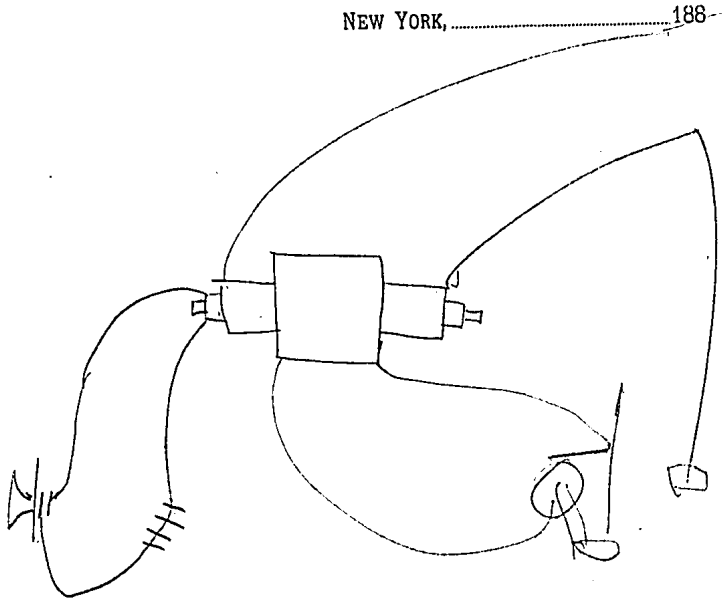
New York, ... 188

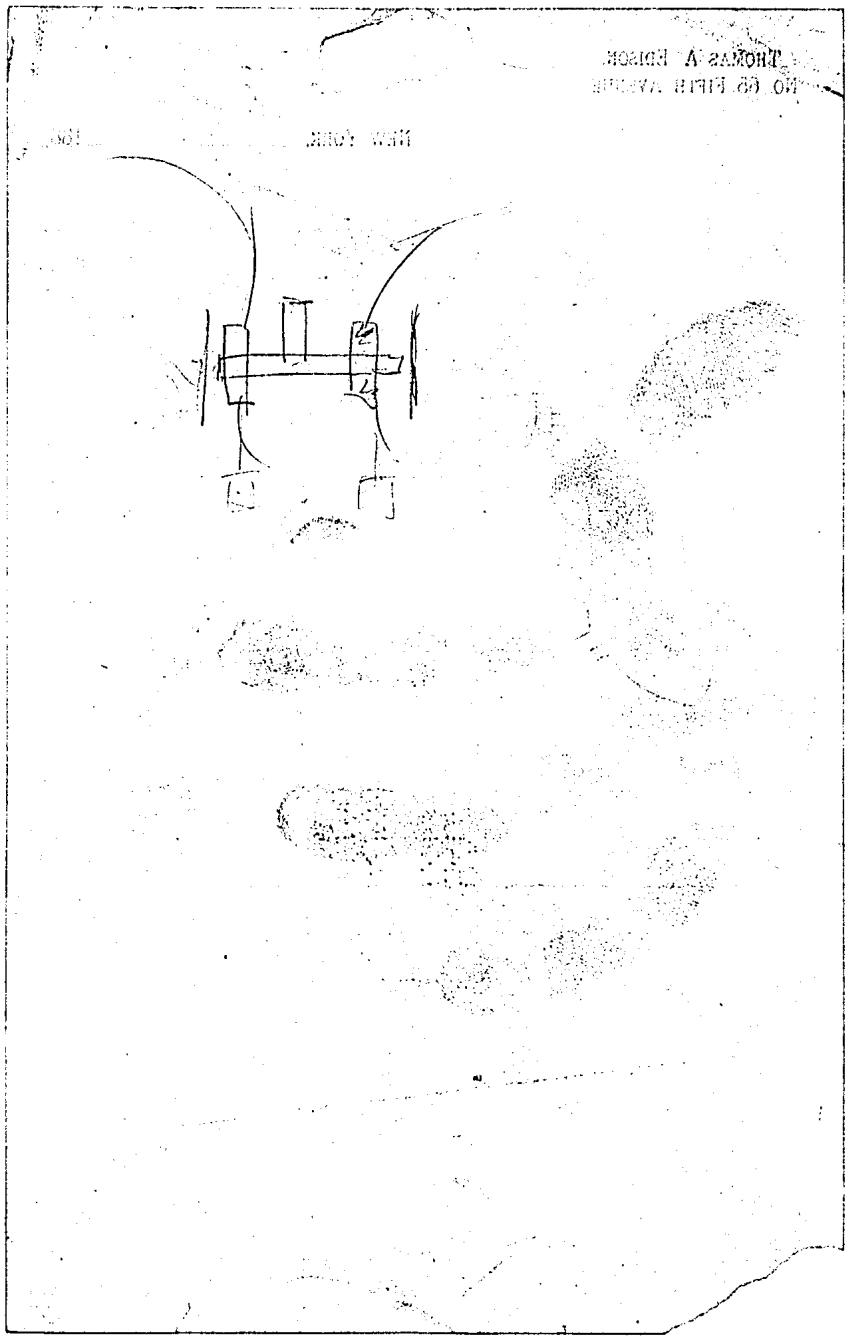
4



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

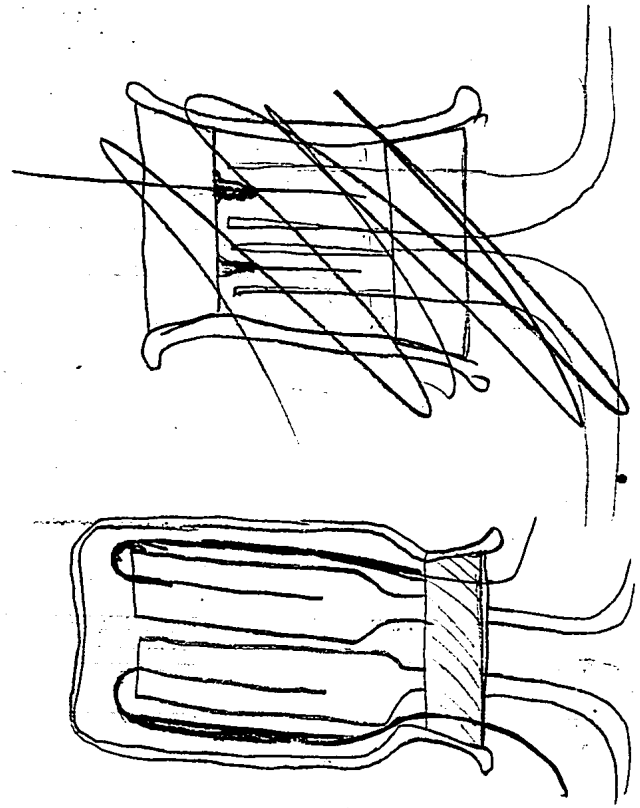
NEW YORK, ... 188





THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, ... 188

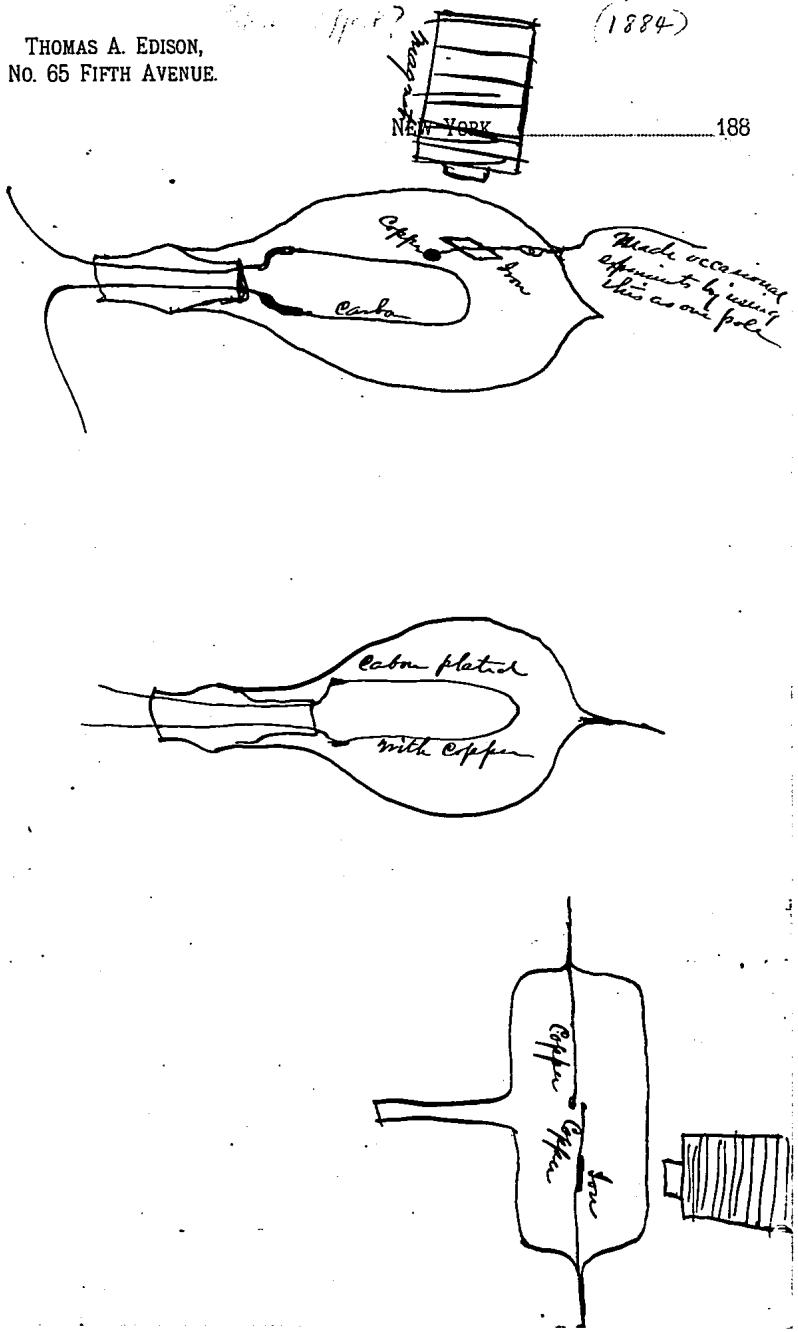


Actual size

THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

(1884)

NEW YORK, ... 188



THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

(1884)

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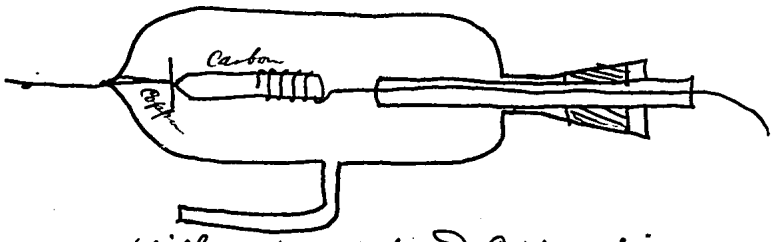
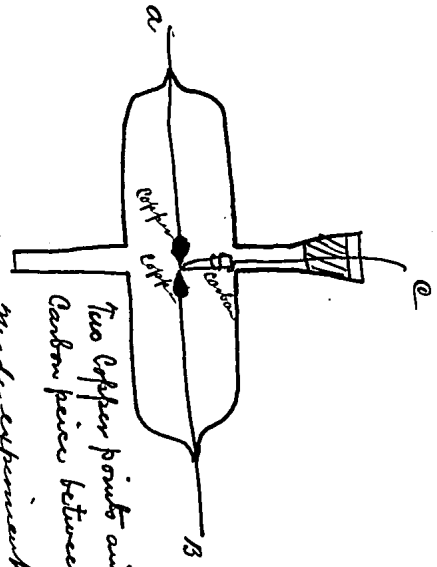


With carbon point and Copper disc
Same experiment but used Copper point as well as copper disc

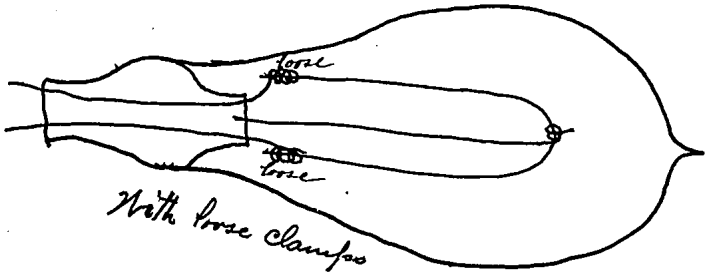


Two Copper points and Carbon piece between
Made experiment by sending current from a to B, also connecting e to frame a and the B

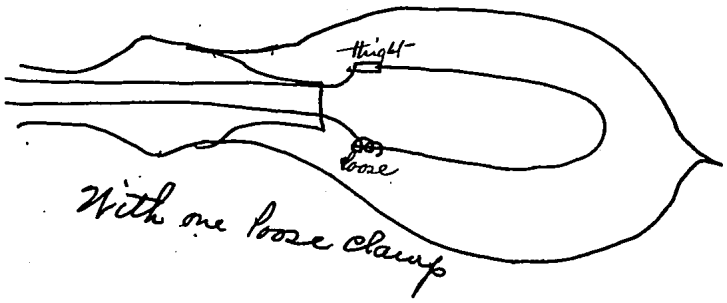
THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

(1884)

NEW YORK, ... 188



With loose clamps

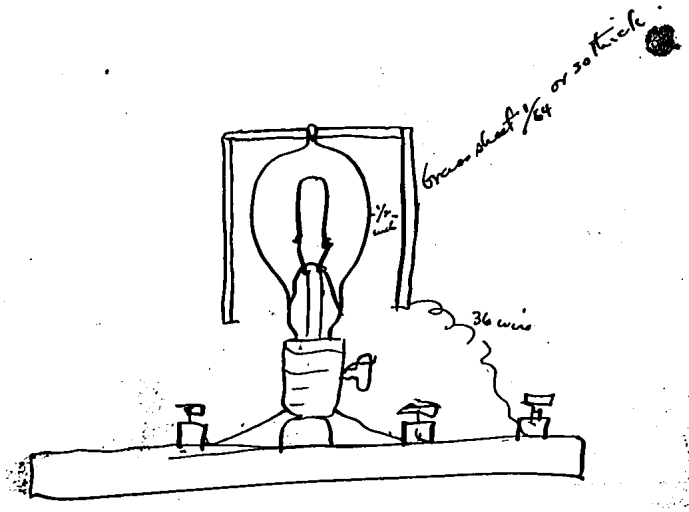


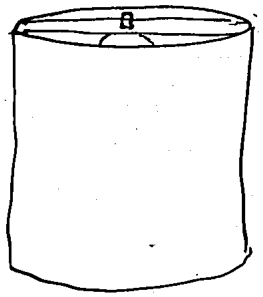
With one loose clamp

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

NEW YORK, Dec 1 1884

J F Ott
M M F

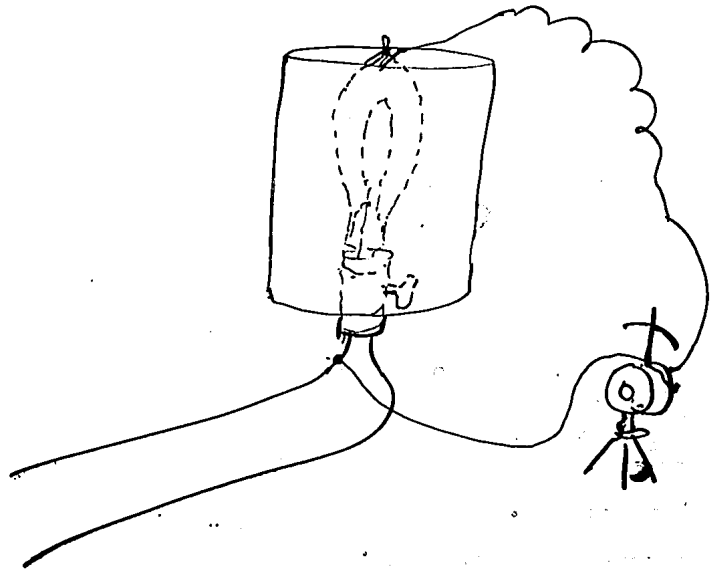


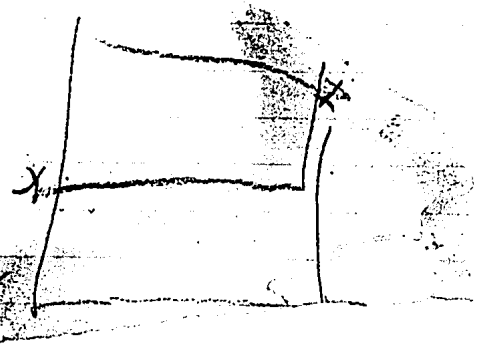


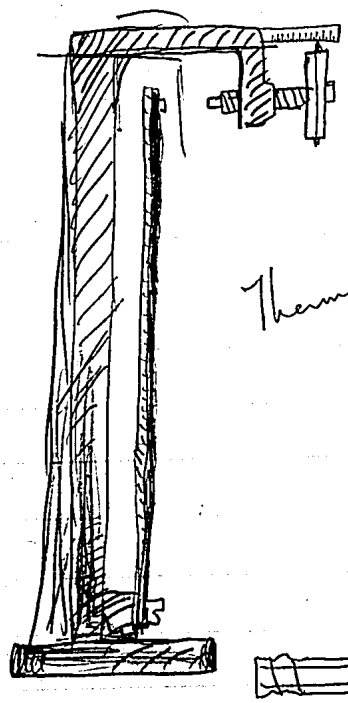
THOMAS A. EDISON,
NO. 65 FIFTH AVENUE.

NEW YORK, Dec 1 1884

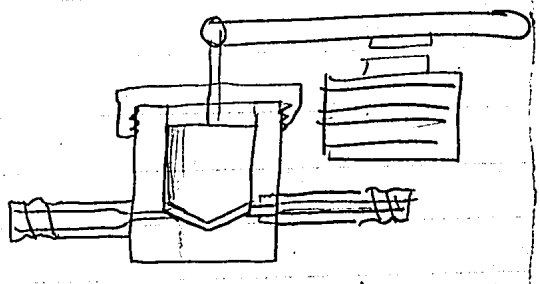
J. F. Ott





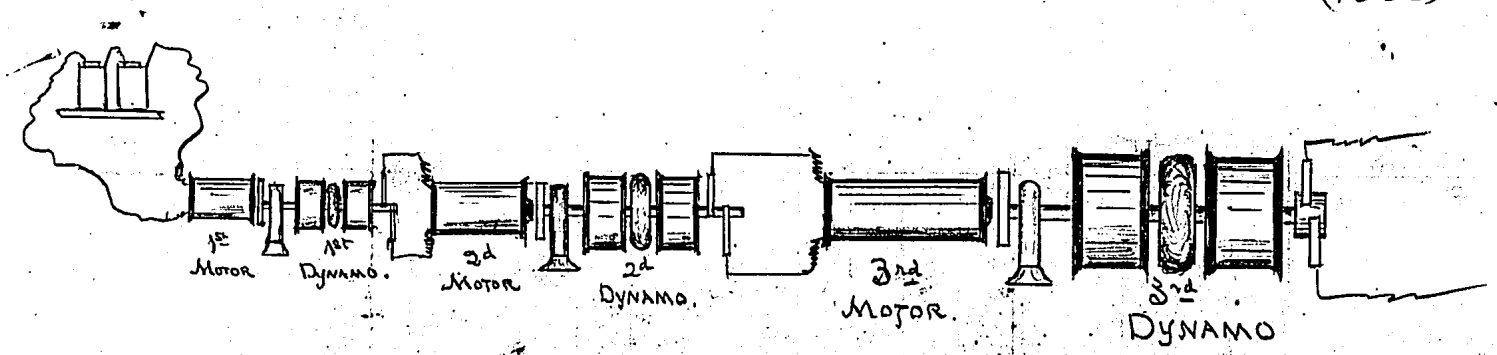


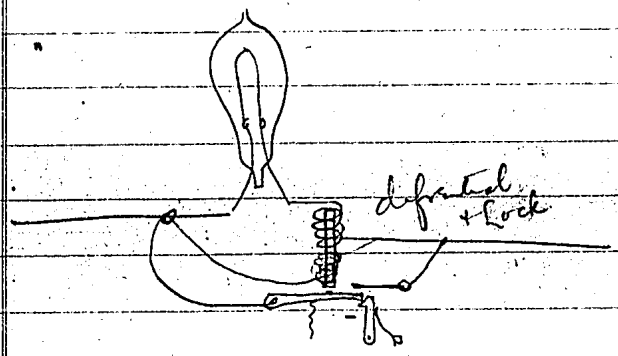
Thermostatic Regulator

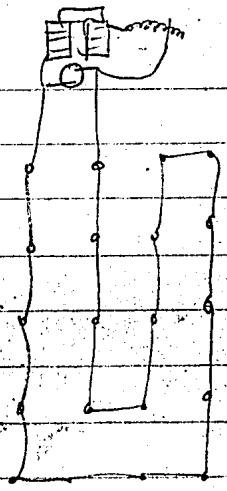


gas Regulator

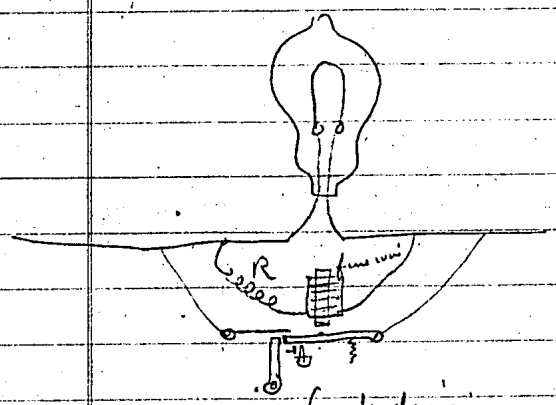
(1883)



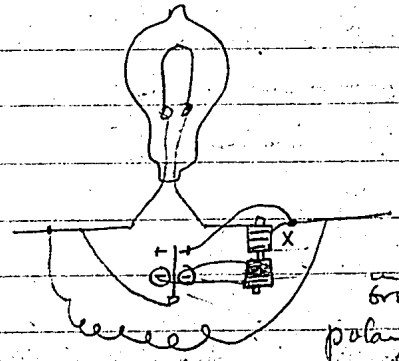




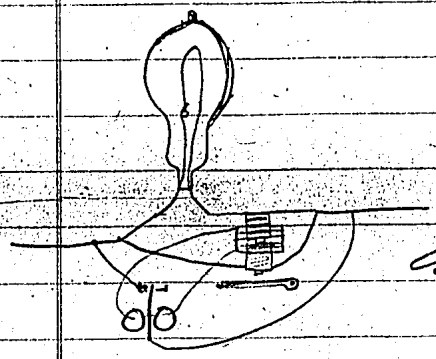
System of Street Lighting by incandescent



Lock device.

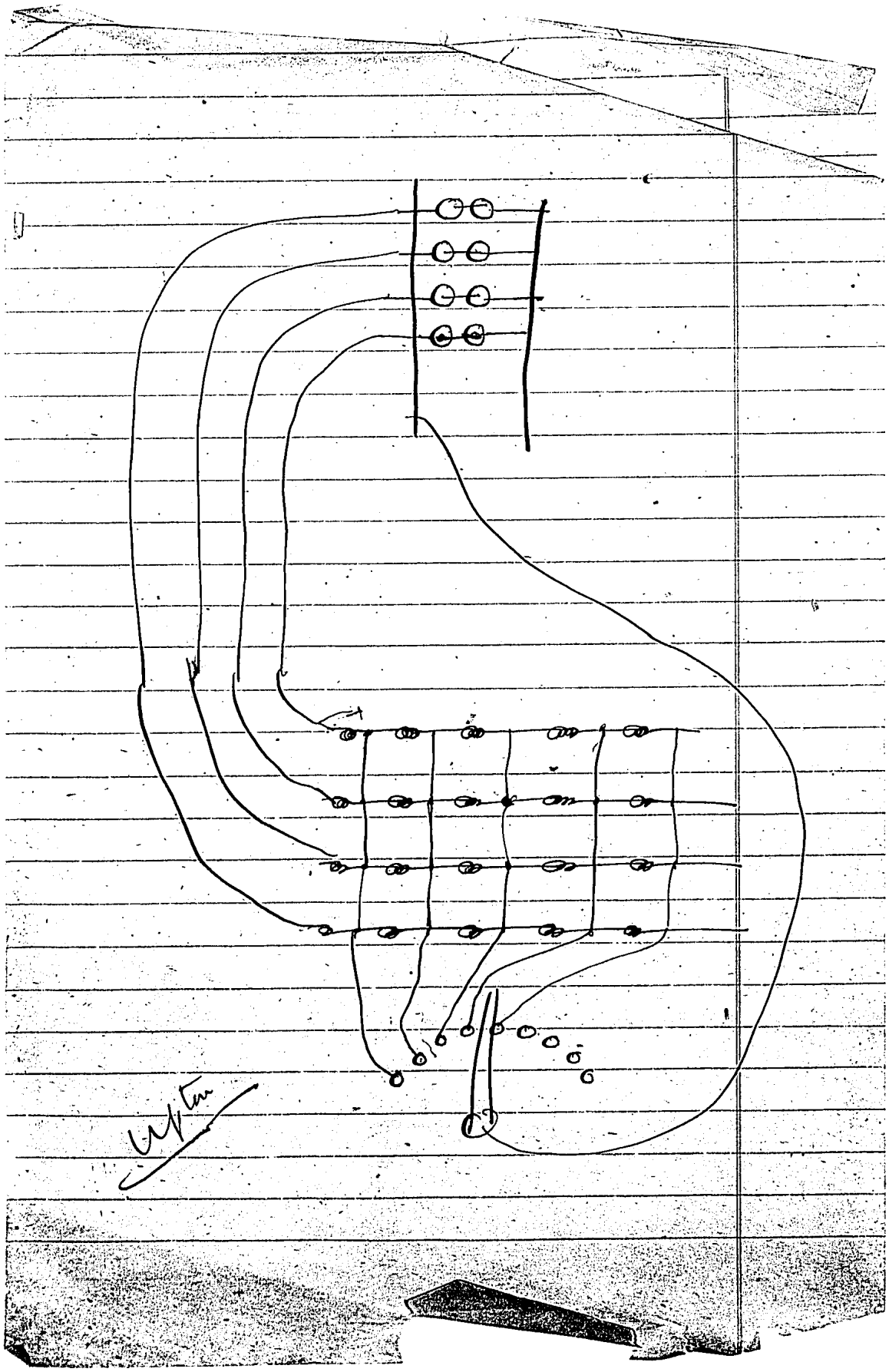


induction breaking X polarized relay



Same as

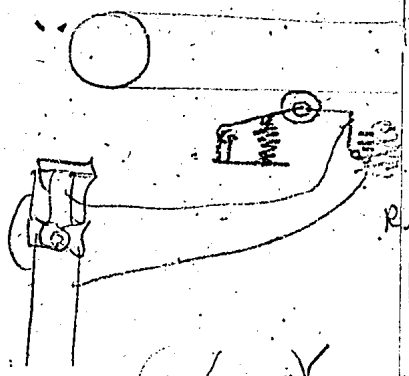
Automatic Cut outs in case Lamp is Broken - Dyer interweave a spare Lamp in place of short circuit I have a case already in — Can you get Broad Claim for cut off for incandescent Lamp in series not only with spare Lamp but without using for dead short circuit.

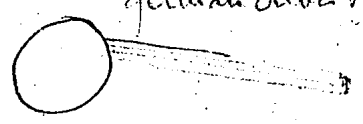


Lamp Filament

1883

Several fibres twisted together





German Silver Brush,

Lamp with Vacuum less than 1 millimeter so carrying quick take place at clamp or lines. Carbon filament treated in gas Cyanogen then Vacuum made low =

Plumbago and surface the filament,

Kamaotu white wind double insulation between layers

use parchment with paper impregnated —

see Westinghouse patent if we insulate one layer clean moulded away from other

Insulating layer on covering wire from the other =

patent our brush —

End on —

piano or phos bronze for binding wire

claim a flexible filament of Carbon formed by carbonizing a flexible filament of organic material & during or after carbonization depositing Carbon upon the surface of the same in combination with a [illegible]

If 65 5th ave had a 250 Light machine, and run that number of lights for 4 hours 30 days. =

Coal plant	
Engine	750.
Boiler. 45 @ 50 hepower	1000
Setting Engine Boiler	250
Dynamo	1350
Regulator.	25
Belt	25
Extras	50
	$3450
Depreciation, 8 pct	276.
Engineer.	800
Oil waste	40
Water	75
Brushes	20
500 Lamps Got to 16 candles only	250
95 tons coal 5 lbs per hp	427.
	$1888

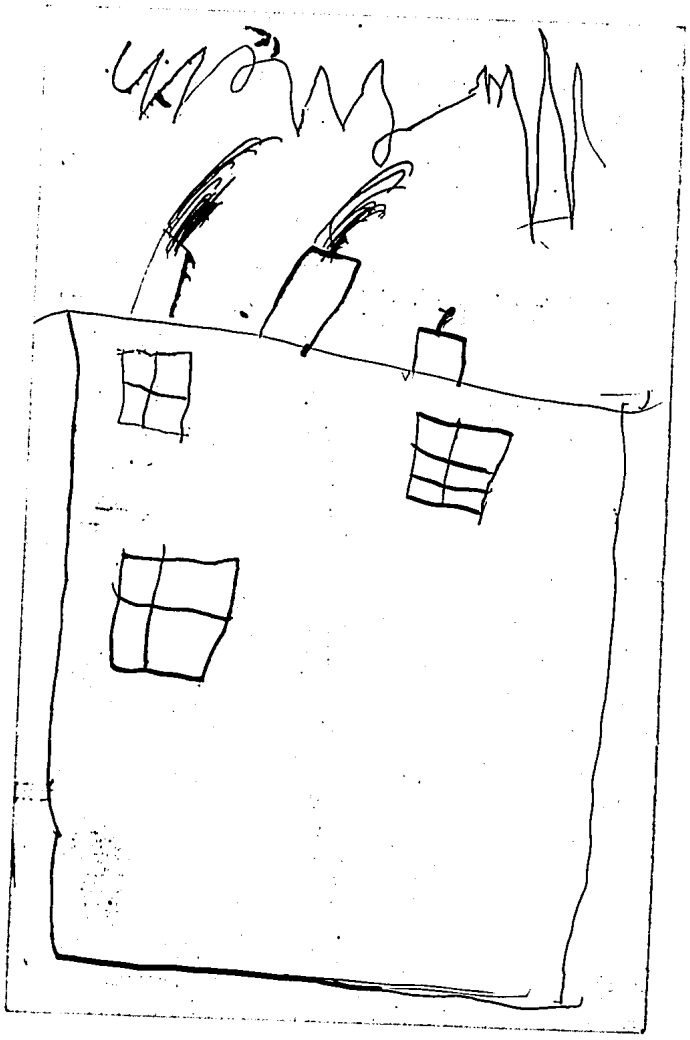
250 lights burning 1200 hours equal to 7½ C feet gas: equals 2 250 M^s costing 1888. if we sold for 2.25 we should get $5062. leaving $3174. to pay interest. the cost per M. without expenses Meters Exec rent etc would be about 83 Cents,

Elec Lt. (1881)

Want foot lbs at ~~from~~ ~~[illegible]~~ barely visible red in dark room - then at red then bright red then yellowish red, then reddish yellow, then yellow bright yellow then whitish yellow also when it gets to 1 candle then candle by candle up to as high as you can go say 50 candle, then give it at 60 80 & 100 candles

also resistance of lamp at all the above intervals,

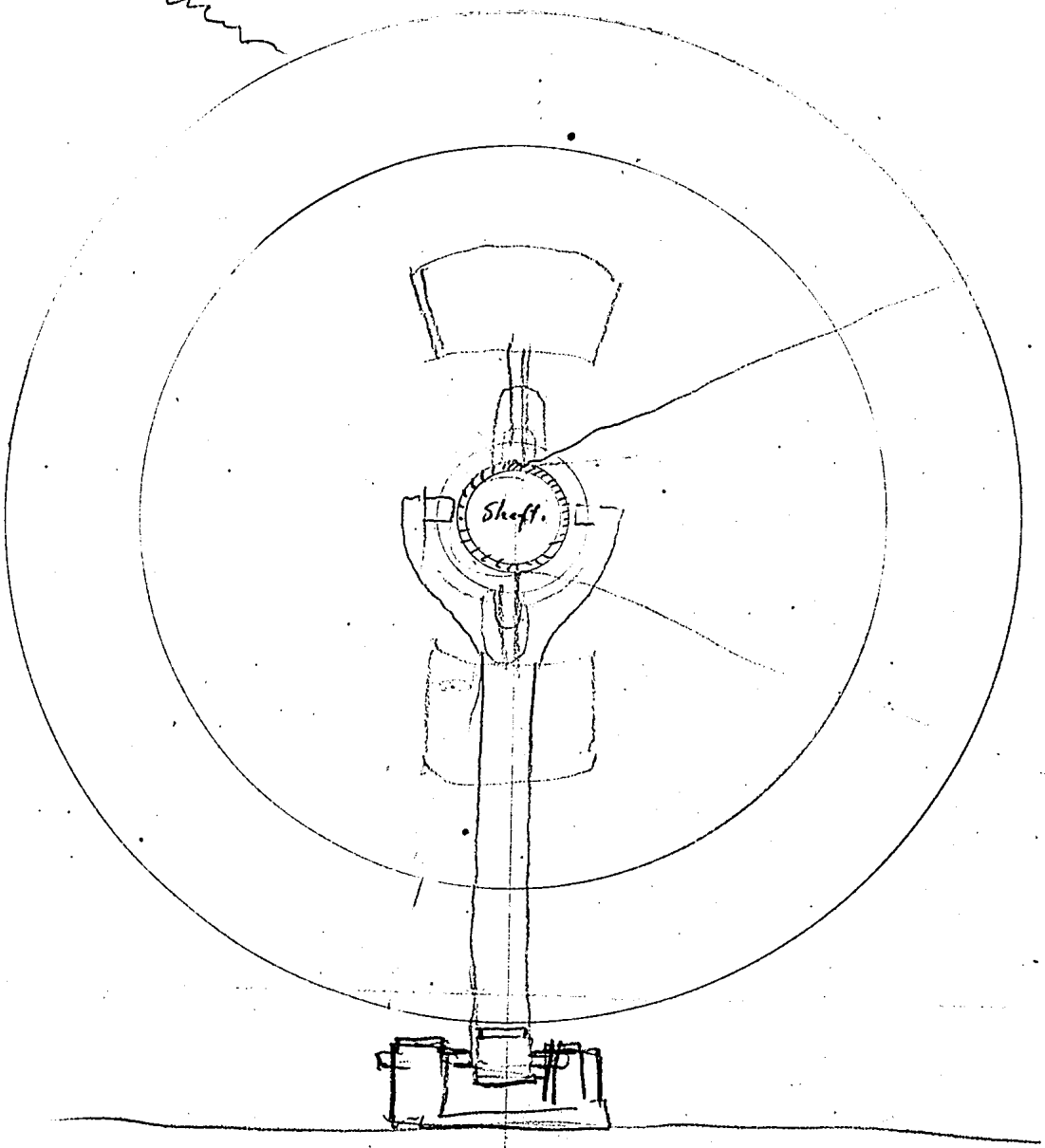
want table of resistance necessary to insert in circuit of a lamp. 10 p h p. in Circuit to bring it from 48 candles incand down to 1 candle & lower through all the shades as above - also another table from 16 candles incandescent down candle by candle, through all the graduations.

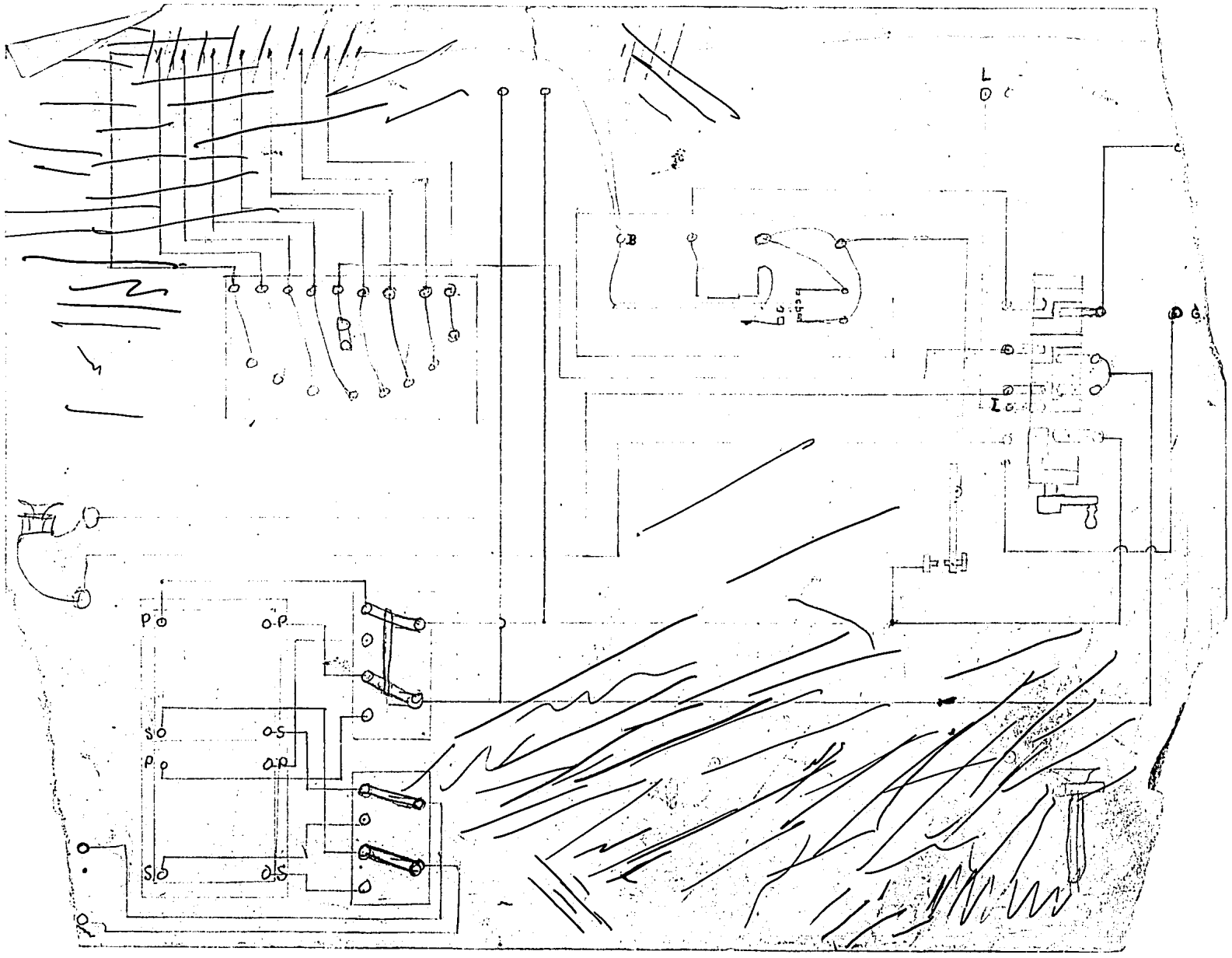


Odour of camphor is destroyed by ~~asa~~ asafoetida,
? albornum, sagapenum, anime, balsam tolu,
disguised by musk.
Camphoric acid & the camphorates

Governor

Model Governor



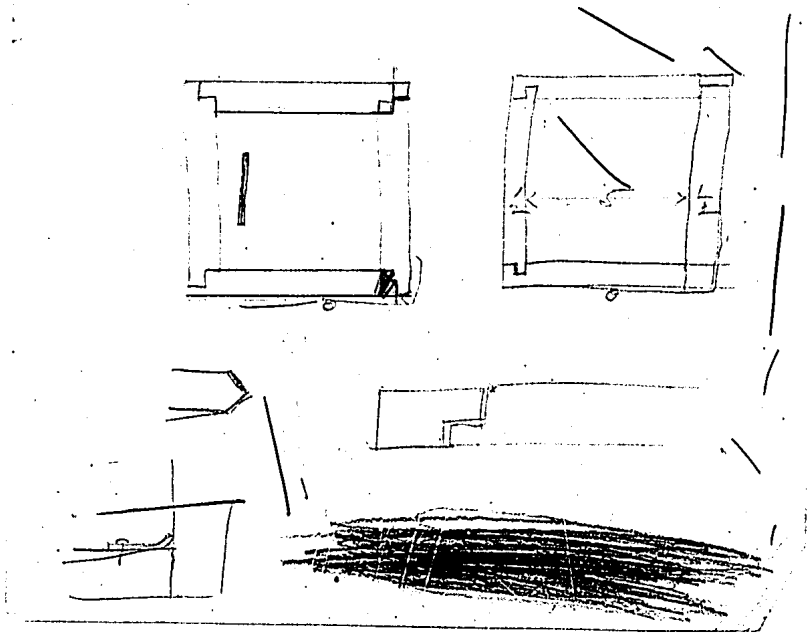

L
B
G
L
P
P
S
S
P
P
S
S

Mill Photometer

Inside Length	53 ins
Outside "	54 "
Inside width	5 "
" Height	5 "
Outside " width	6 "

Sides &

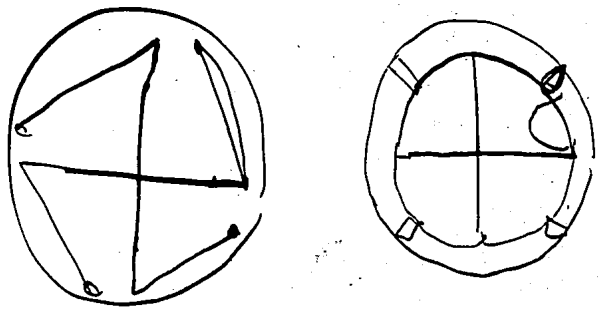
Candle & Lamp 48 in
(Center & center)

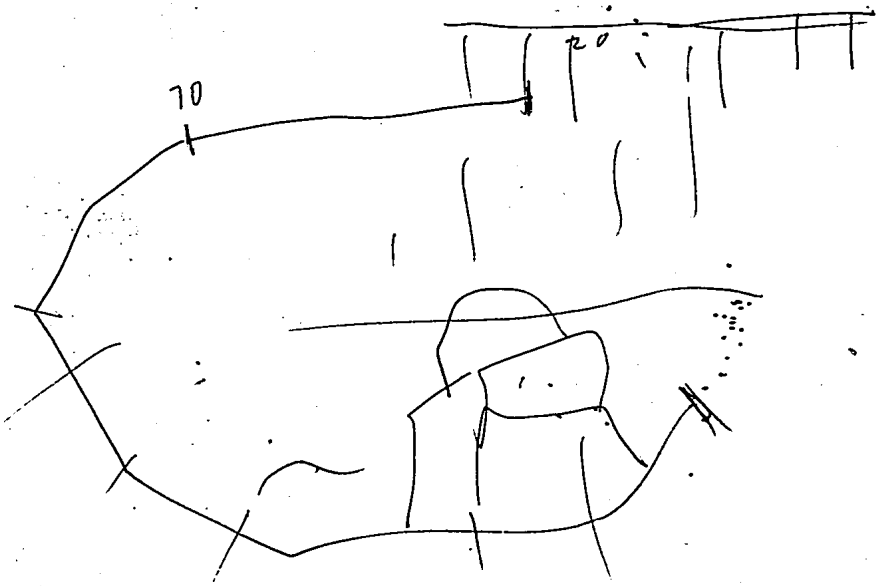


11	25.7 +	25.8 − ~~25.6~~ +
12	25.900	25.90 ~~25.8~~ −
13	26.2 −	26.2 +
14	26.4 −	26.4
15	26.800	~~26.3~~ +
17 ~~16~~	24.4	24.2
16 ~~17~~	26.2 −	24.9 alkaline
19	26.000	26.0 − Chromo alkaline milk
20	26.8 +	26.1
21	26.5 −	24.5 strongly alkaline
22	25.3	25.0
23	26.4 +	26.3
24	26.400	26.2
25	26.6	25.5
26	25.9 +	25.700
27	25.7 +	25.6

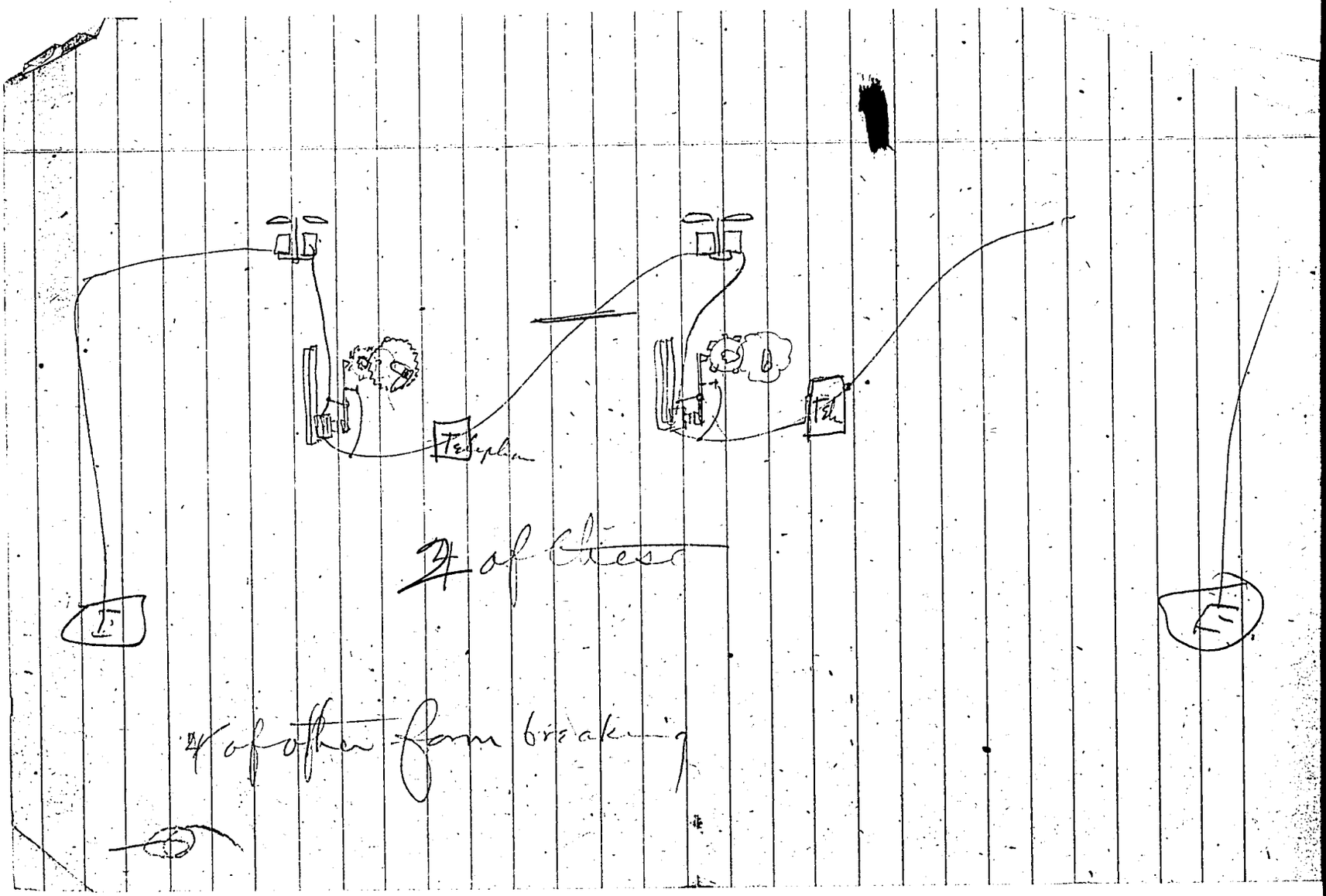
28 = 26.2 + . . 26.

Started 1/20 anchor. Battery would not
begin to work. in 100 volt. tell I had
taken out rooms,
started about 7 P.M.,

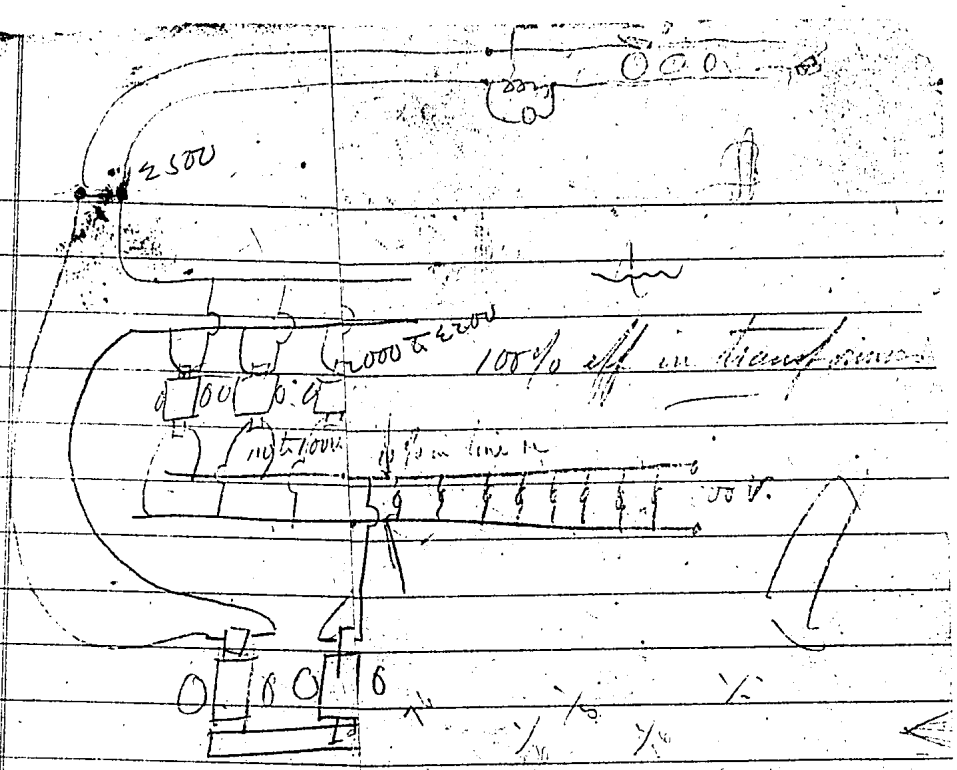



70
20

Main Line
Main Line


Telephone
Tel
4 of these
4 of other form breaking

McKenzie



Total C = 100 Amp = 250,000 Watts

At no load = 2000 V = 500 in motor

At ½ load = 2100 V = 400 in motor

+ 20% of load of the transformer (2000 Amp)

= 1000 Amp. This gives 200 amp for

secondary transformer at 100 V.

This has been accomplished by strengthening

field. At full load at 1000 Amp

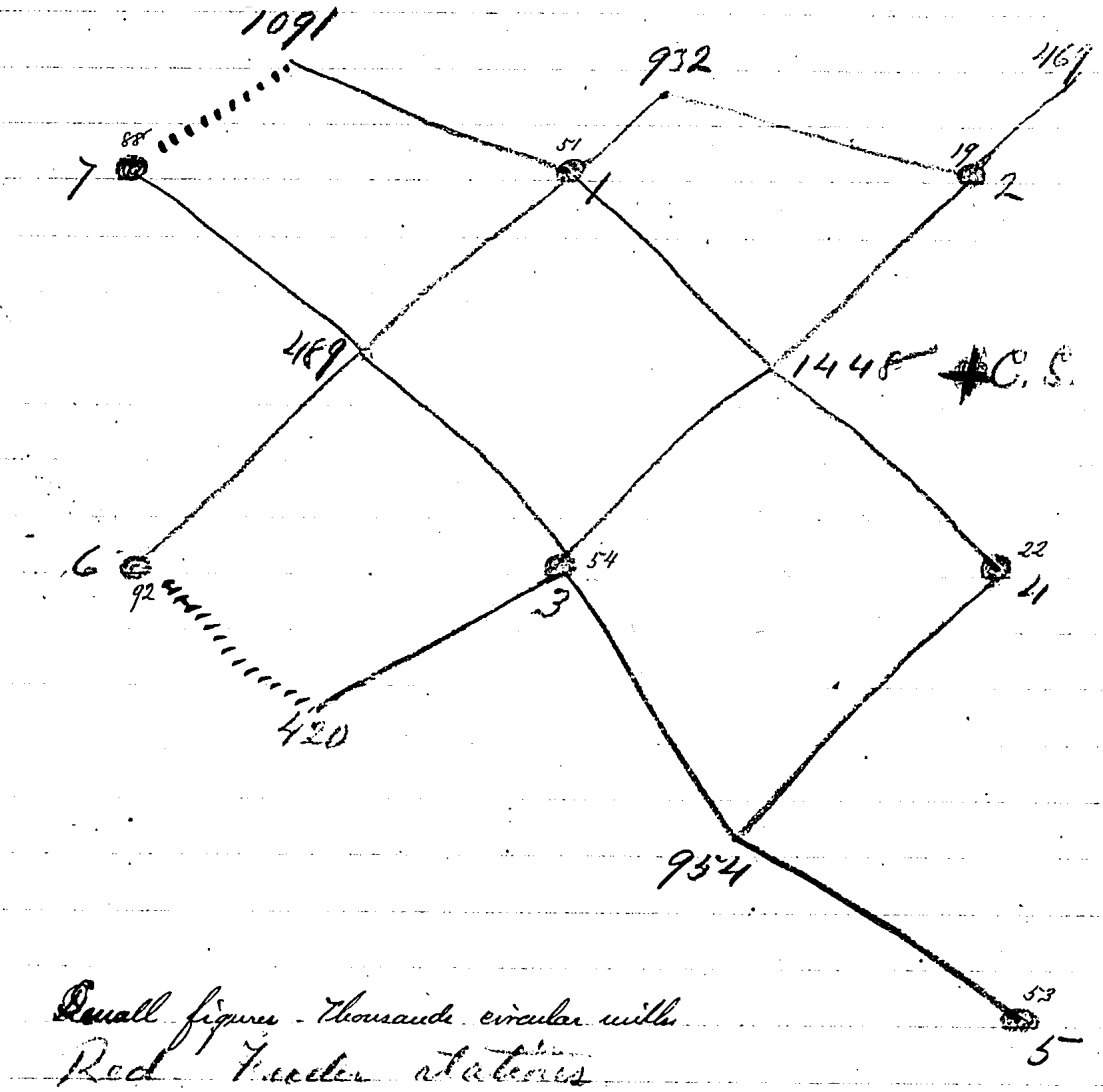
+ there are 300 V = 16.6% total =

Ans.

Central Stns

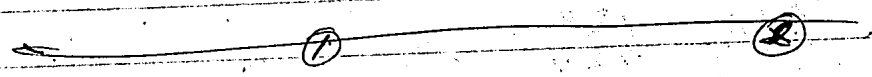
Diagram of Supply

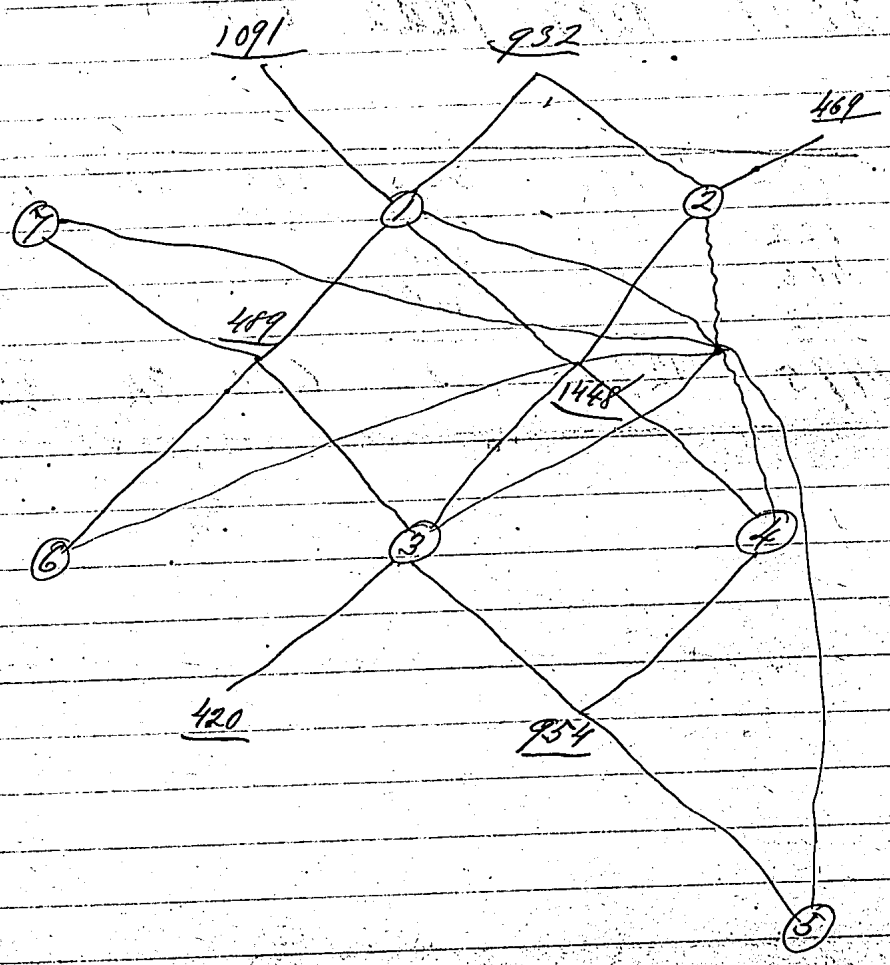
(1885)



Small figures - thousands circular mills
Red - Feeder Natures
Blue - Diagram of mains

Central Stns. (1885)





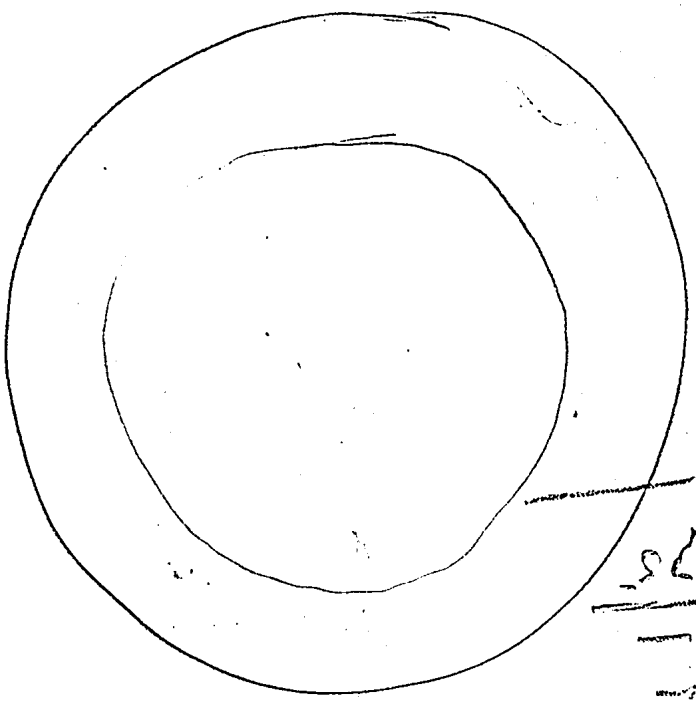
1	2	3	4	5	6	7
362	362	318	318	318	122	122
466	469	362	362			
1091	466	122				
122		420				
2041	1297	1222	680	318	122	122

545	466	362	362	318	122	545
122	469	122	318		210	122
466	362	210				
362		318				
1495	1297	1012	680	318	332	667

Form L. 1000-2-18-'86.

THOMAS A. EDISON,
No. 65 FIFTH AVENUE.

New York, ... 188



THOMAS A. EDISON, [illegible]
NO. 65 FIFTH AVENUE,

NEW YORK, 188

Lead
Zinc
Nickel
Iron
Brass
Copper — ribbon
Silver
Platinum
Magnesium
Aluminum
Cadmium
Mercury in glass tubes
Gold

Printing Solution {Standard

Pot. Ferricyanide	3 pts
Ammon. iron citrate	5 "
Water	40 "

3 minutes exposure to direct rays of sun.

The following can be used to good advantage:

Pot. Ferricyanide	2.5 pts
Ammon. iron citrate	5. "
Water	40. "

4 minutes exposure, dark blue

Pot. Ferricyanide	2. "
Ammon. iron citrate	5. "
Water	40. "

4 minutes exposure, lighter blue than preceding.

Pot. Ferricyanide	2.25 "
Ammon. iron citrate	5
Water	40.

good

a disc of Cu 12 in dia
& abt 1/5 inch thick.
on brass axle was mounted
in frame so as to allow
revolution, its edge being
at one time introduced
bet mag e poles.
The edge of plate was
well amalgamated for
purpose of obtaining
a good & movable
contact, & a part around
the axis was prepared in
a similar manner —
Condrs or Collectors of
Cu or pb — were made so
as to Cm in contact
wi + edge of + Cu
disc or with the form
of plate, merely to be
described. These Condrs
about 4 in long 1/3 in
wide 1/5 inch thick

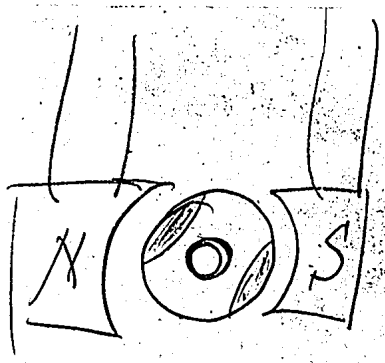
Patent the Use of ~~the~~
a Commutator & Brush
for Dynamo & Engine
Commutators with
amalgamated surfaces.

The face of the Commutator
is amalgamated. The brushes
strips wheels etc resting
on the Commutator is
amalgamated, object smooth
down and prevent spark
from roughening Commutator
& brushes & thus reduce it.
File provisional no.

1 end of each strip grooved to low of work
Exact adaption to
Convex edge of plate
& then amalgamated
Cu Wires 1/16 in
thickness attached
in + ord manner
by Carrolation to +
other ends of the
Conductor passed
away to the Jack.

England; inventor head
improvements in
Commutators for ~~Dynamos~~
magneto electric machines,
also US patent,
also in France, Belgium
& Canada,

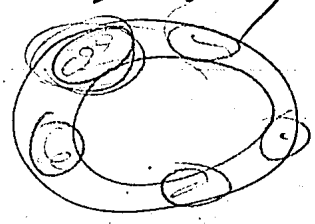
Mention that it is
preferable to use
Commutator blocks
faced with Selen +
then amalgamated.

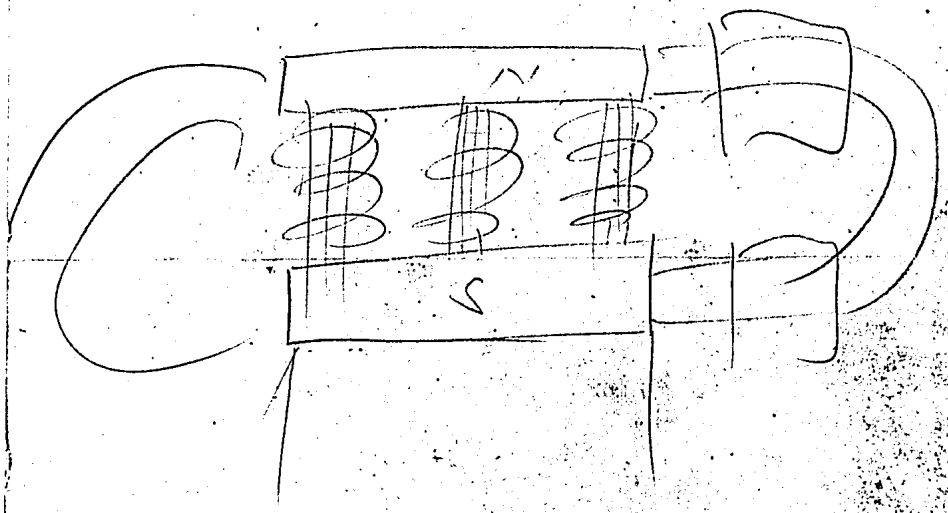


Magneto-thermic motor

Science Mar 7, 84

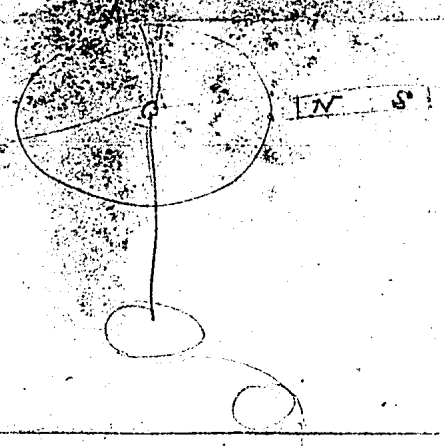
Vol III 2057





Le Journal Franklin Institute, January 1879

p. 29

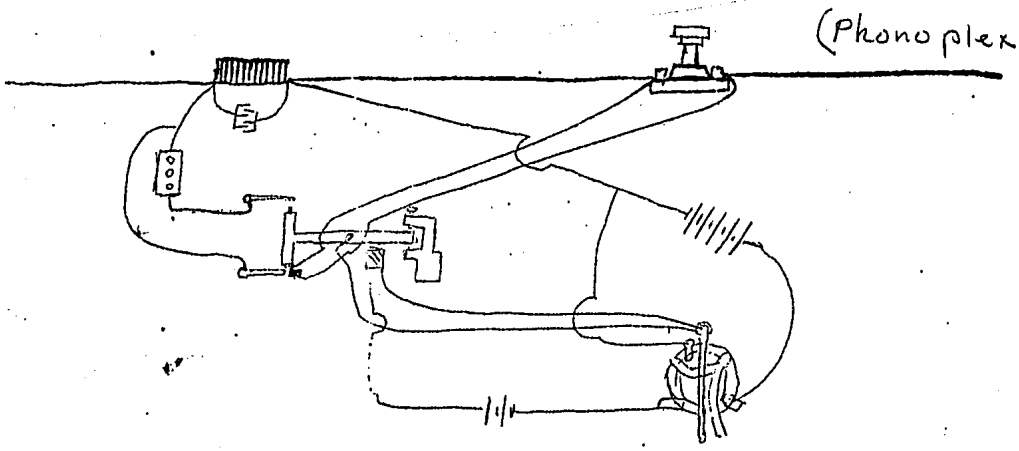


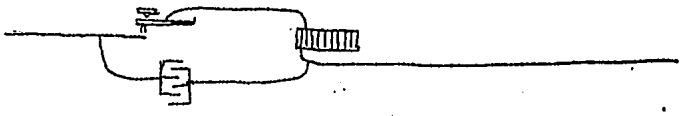
E. Lenz

May 7 87

Plate of metal in mag. field - plate heated & cold. Current generated.

(Phonoplex 188?)





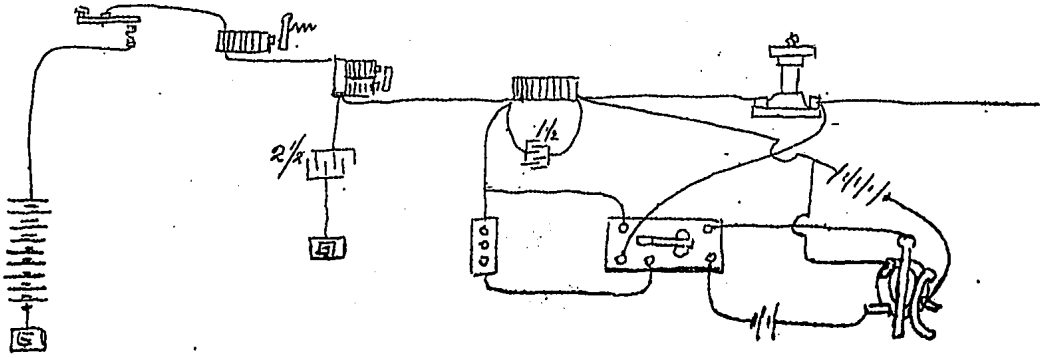
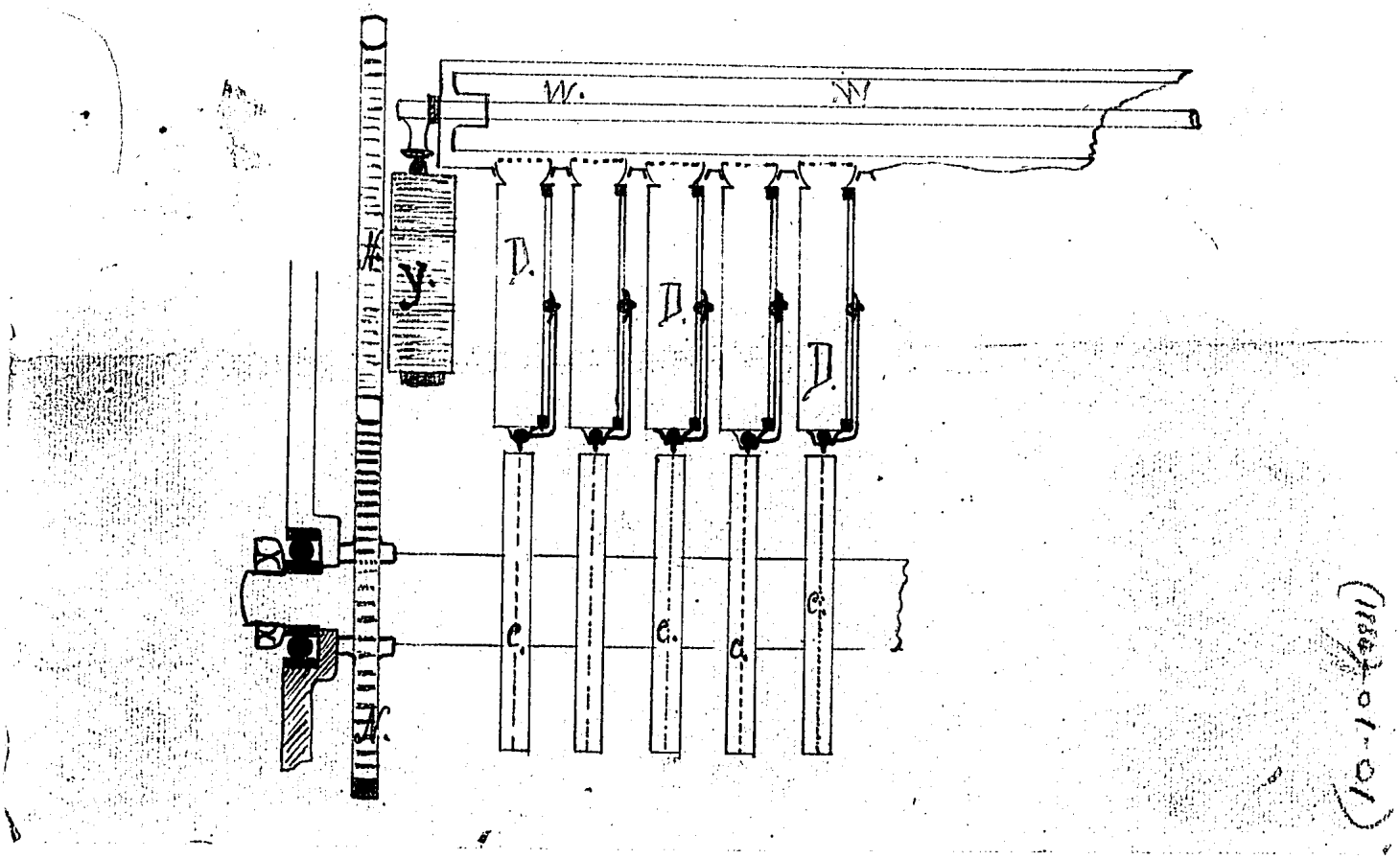


Fig. II.



(10-10-1881)

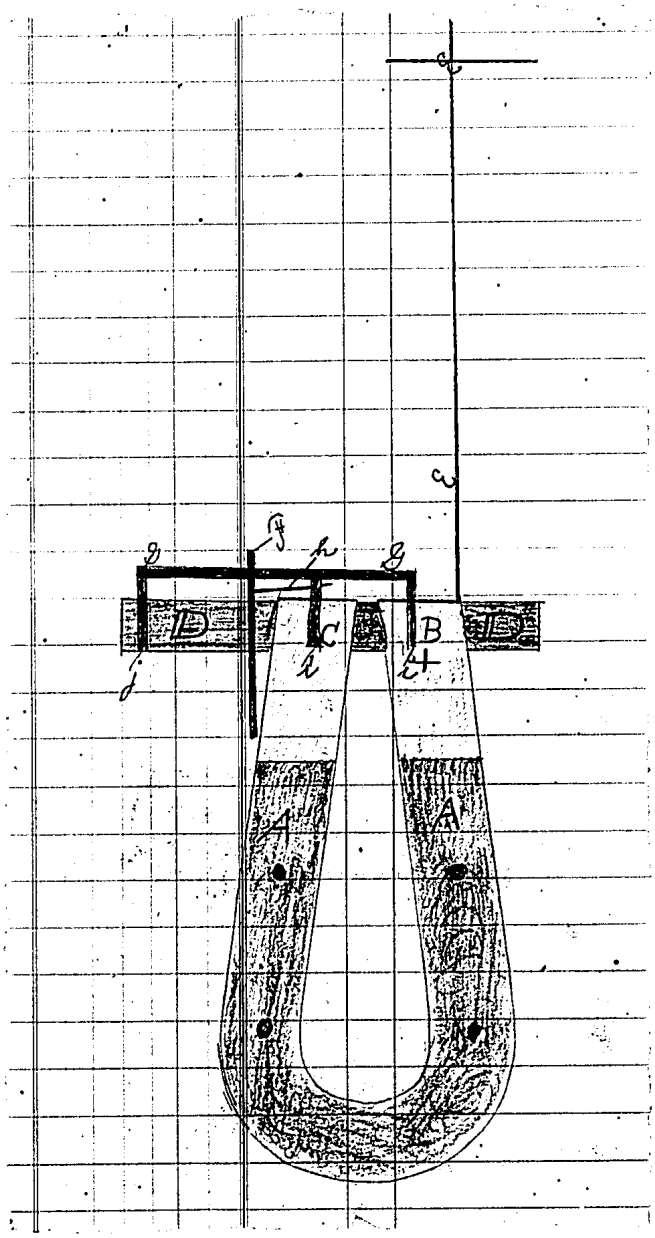

c
e
f
h
g
g
D
C
A
B
D
j
i
i
A
A

Fig. I.

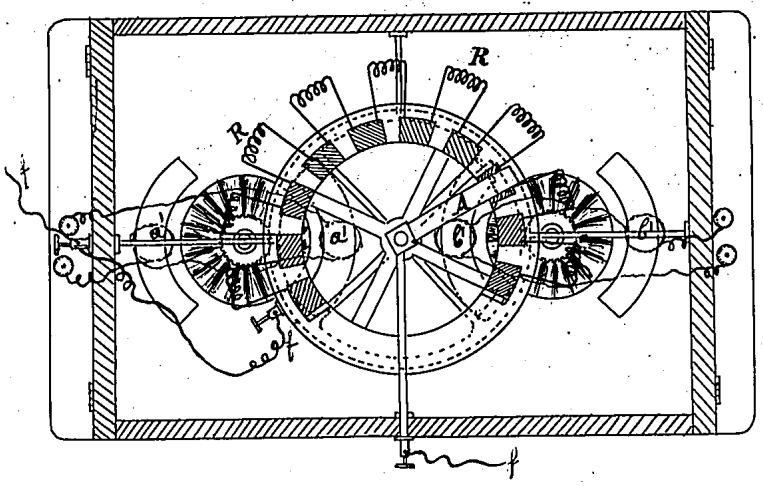


Fig. II.

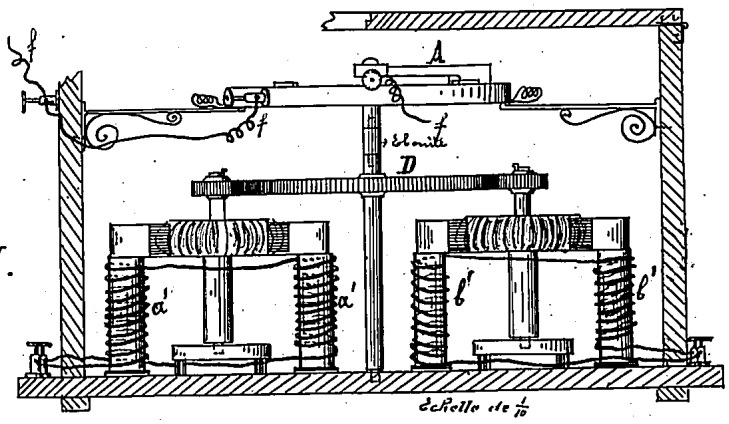
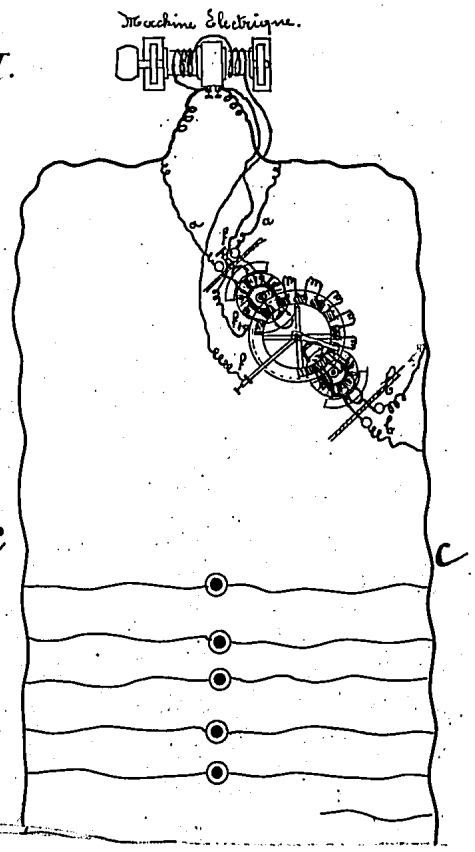


Fig. III.



(Electric Light — Sketches & Notes)

John

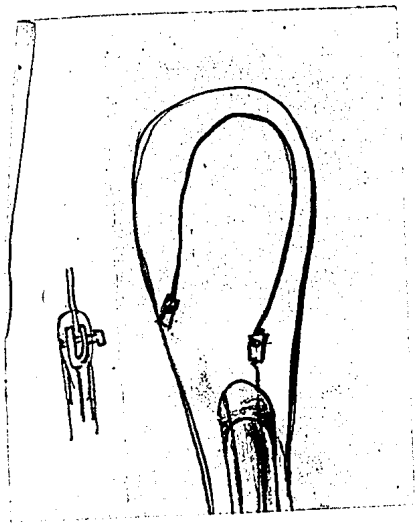
Let me know when you have the Z commutator apart and I will come to the Lab. to look at it before sending it to my office. My address is Prudential Building - Newark

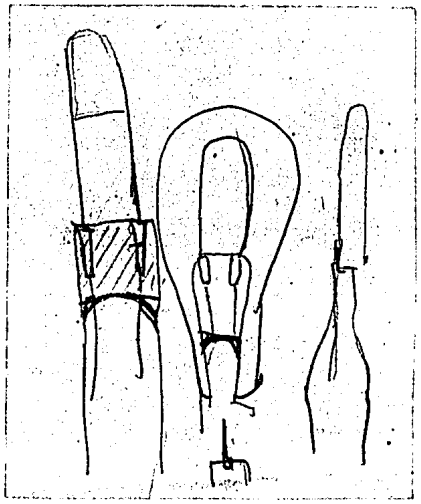
Wm Pelz

(1881)

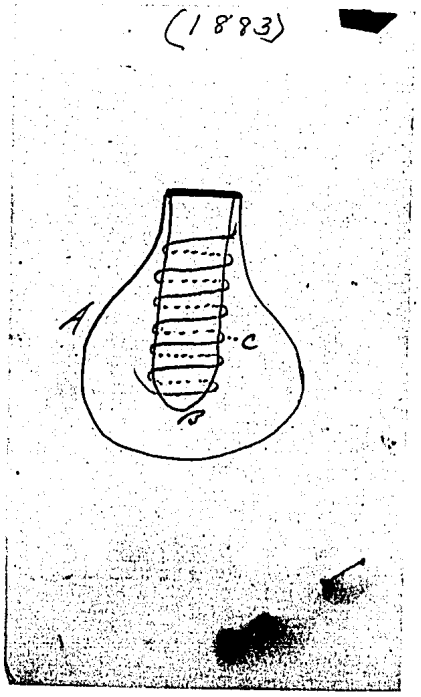
John Ott,

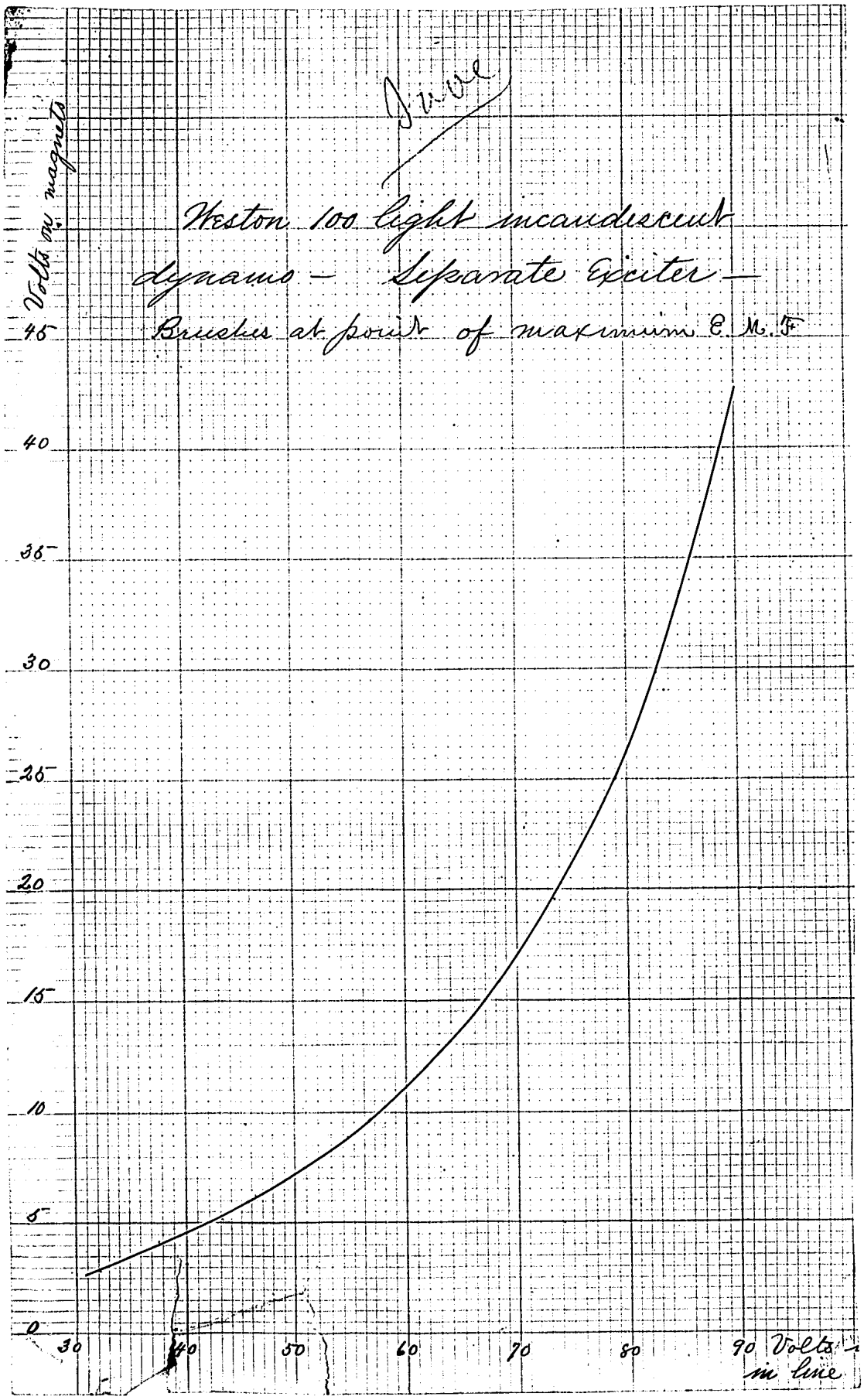
I want ~~adese~~ several designs drawn for forms to Carbonize fibres in. The present forms is too thick & the fibres slip away & so get come out crooked, I want a form in which the fibres never can get out which will be easy to get fibres in & which will put ~~[illegible]~~ the same amount of pressure on (C.C) have the same weight, with a thinner form the weight would be less but I am going to put them at angle of say 15 deg & this will give proper strain, object of making form this is to get more forms in a Cover & not require to pull them in a form as now. These forms I think can be made of plumbago mixed with [illegible] & moulded





(1883)




Curve
Weston 100 light incandescent
dynamo — Separate Exciter —
Brushes at point of maximum E. M. F.
Volts on magnets
45
40
35
30
25
20
15
10
5
0
30
40
50
60
70
80
90
Volts in line

? Bunsen Bell (1884)

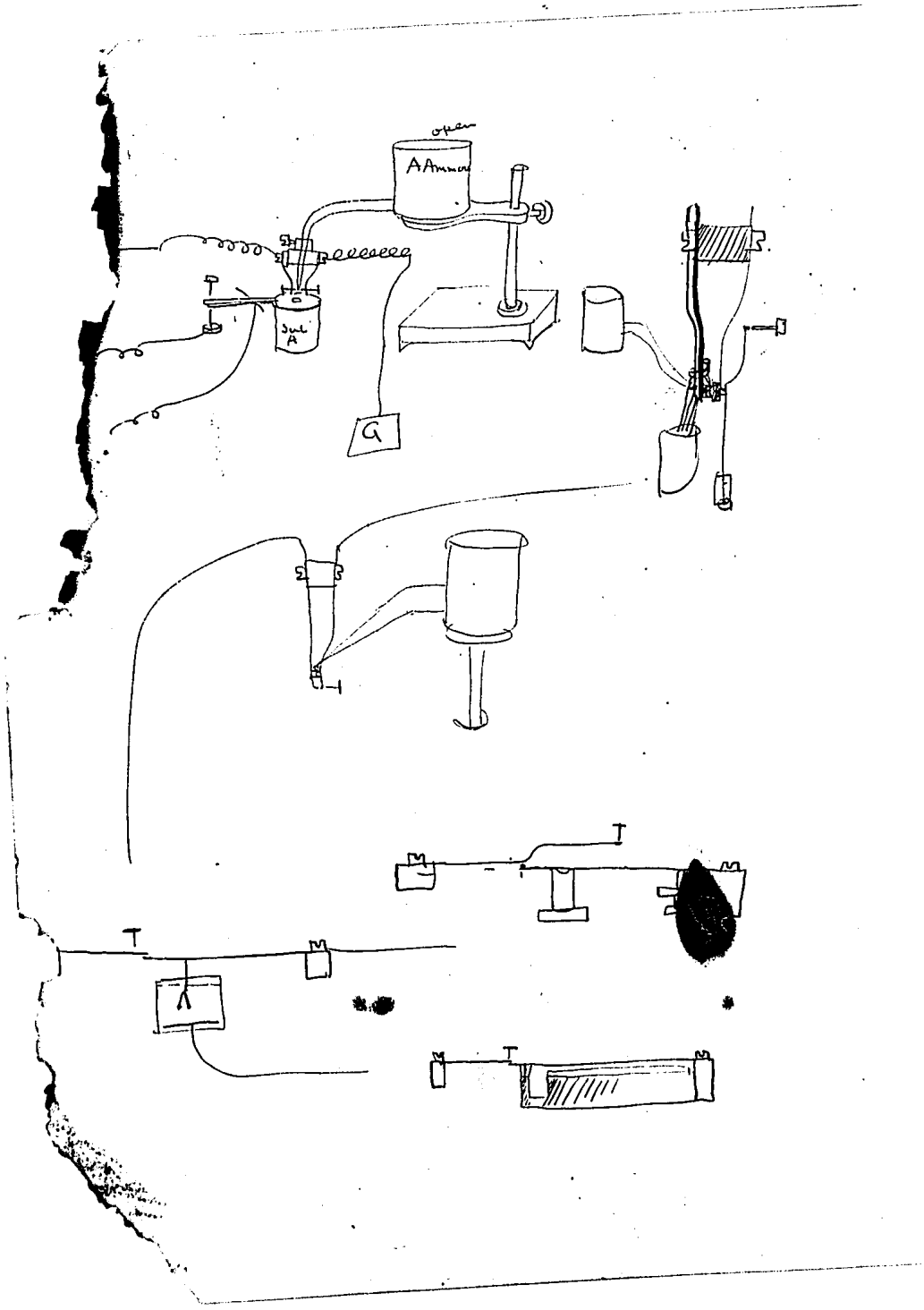
Try cylinder Carbon lead heat in presence of H.

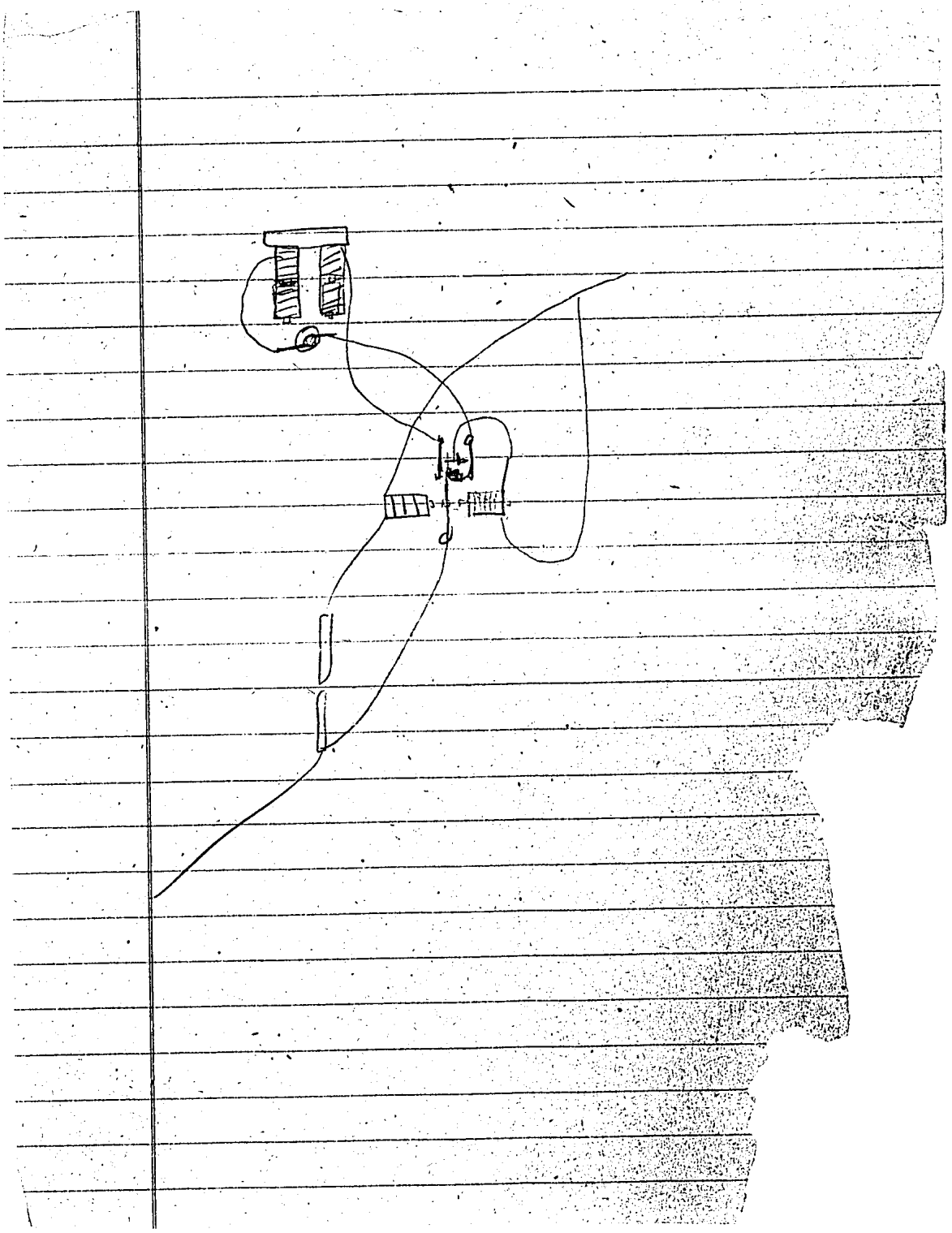
Try cylinder of reduced lead against a cylinder of reduced lead peroxided in the Chem way as prime battery.

Try Chromic acid in Storage batt
Chromic Lead most insoluble of all

Try posulphate Soda dissolve Sul Lead
try the — Storage + prime battery
a little to keep peroxed from
gelling inert

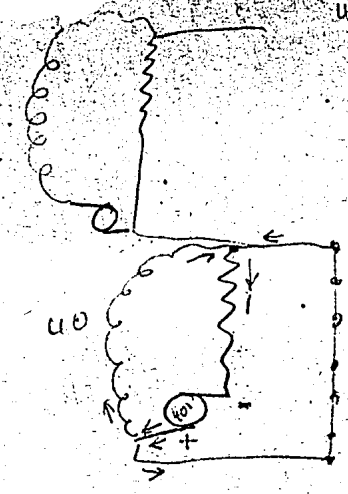
deposit Carbon on filament
by using vapor I do from
gases ~~deposit~~ alone Carbon
known same diamond —

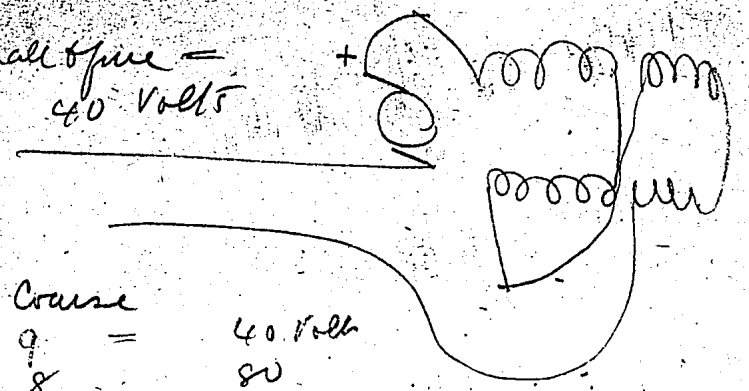

open
AAmmon
Sub A
G
T
T
T



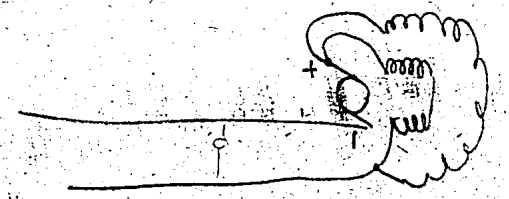
of small coil volt 1 amp =
of fine " " $\frac{1}{10}$ amp

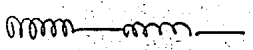
M of Small & fine =
40 volts





Fine	Coarse		
$\frac{1}{10}$	9	=	40 volts
.2	8		80

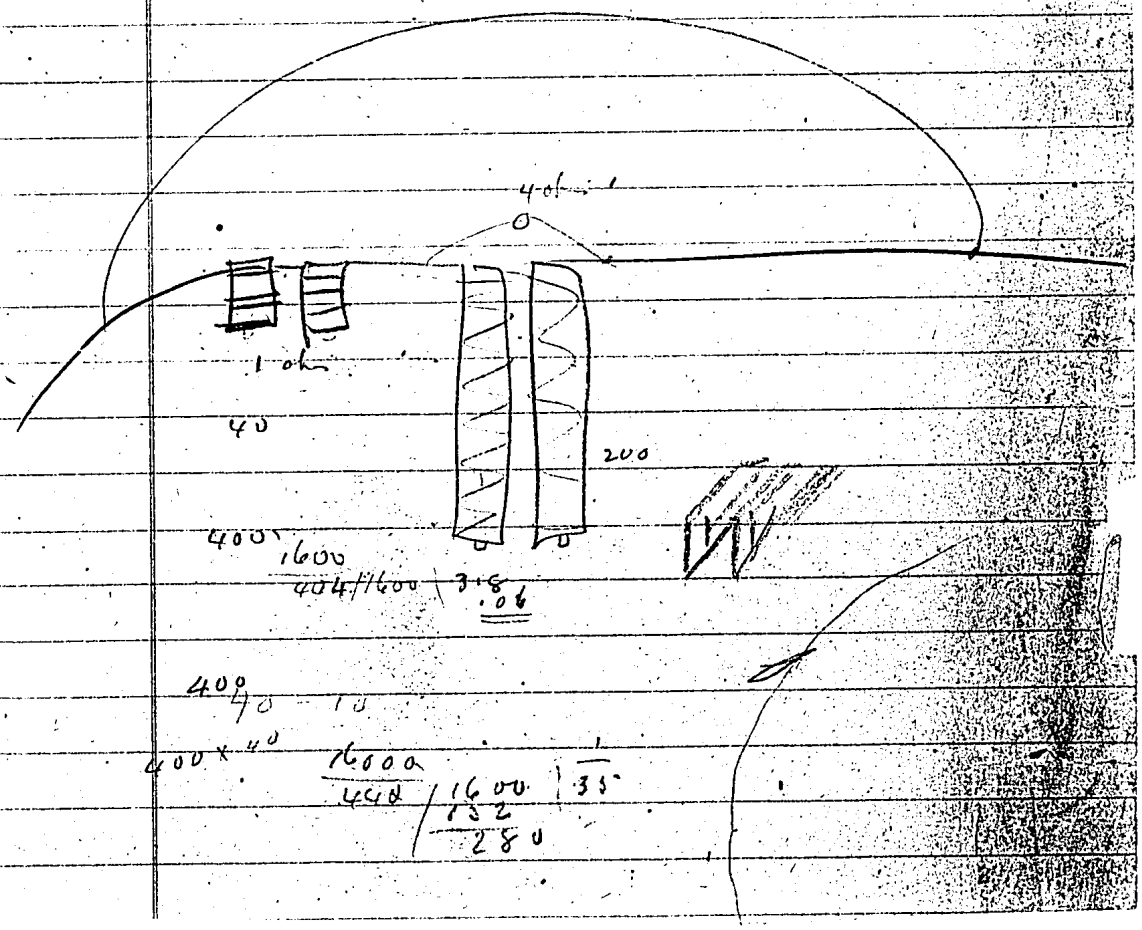




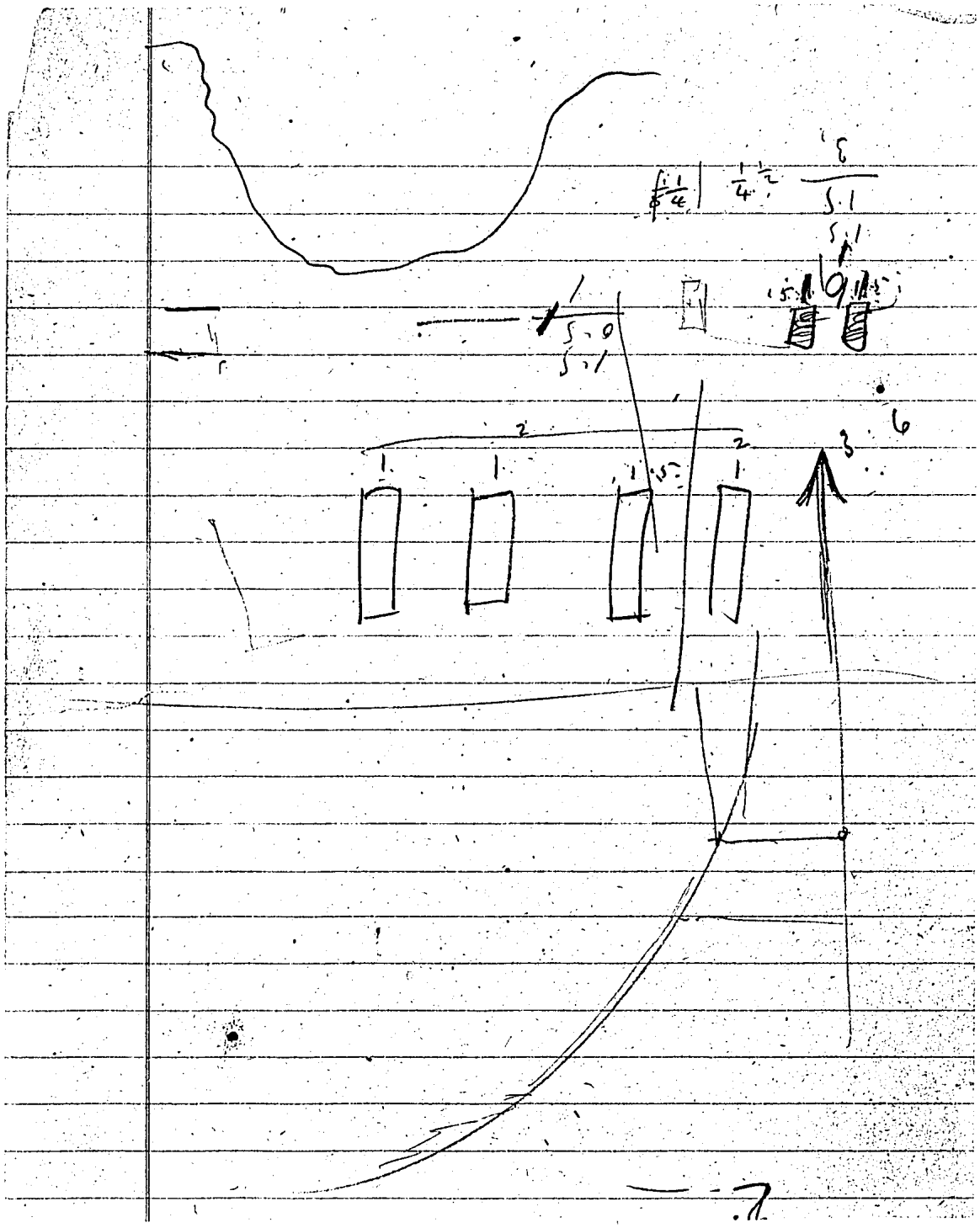
$\frac{400}{400} = 1$ $\frac{1}{10}$

$\frac{40}{4} = 10$

Very short magnets



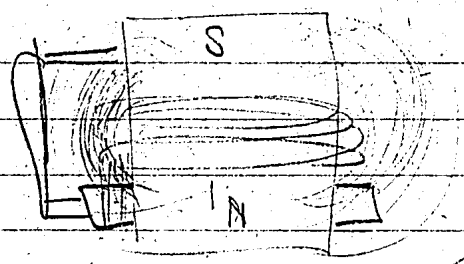
40 hm
100
250
3
300000
250000

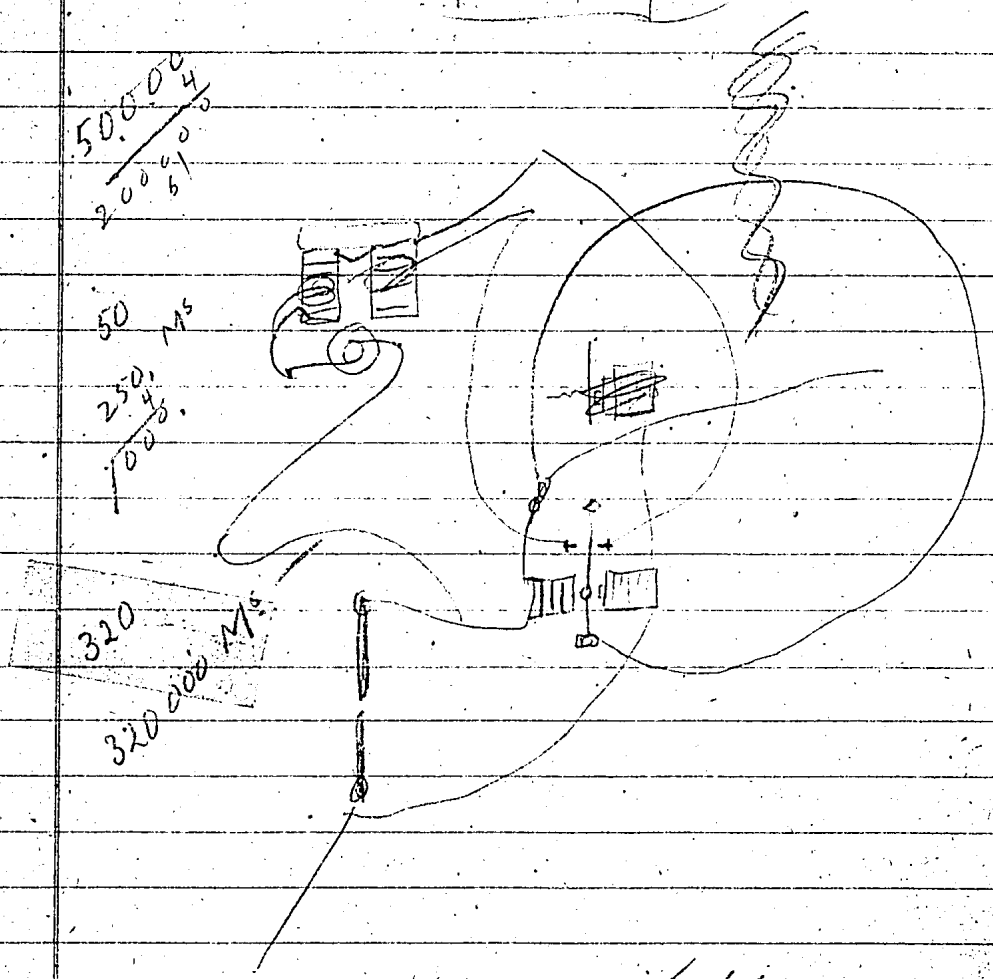


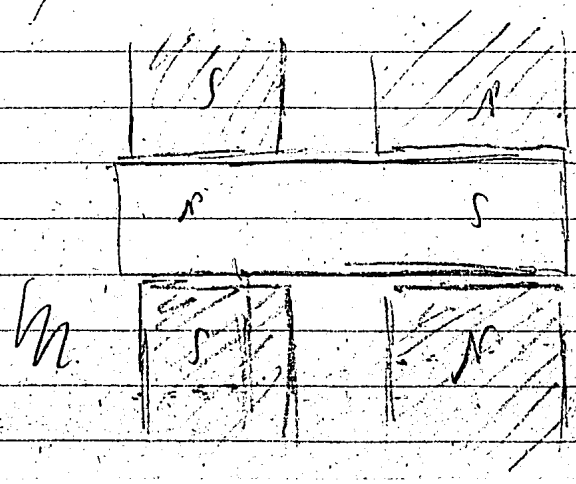
400
175
225

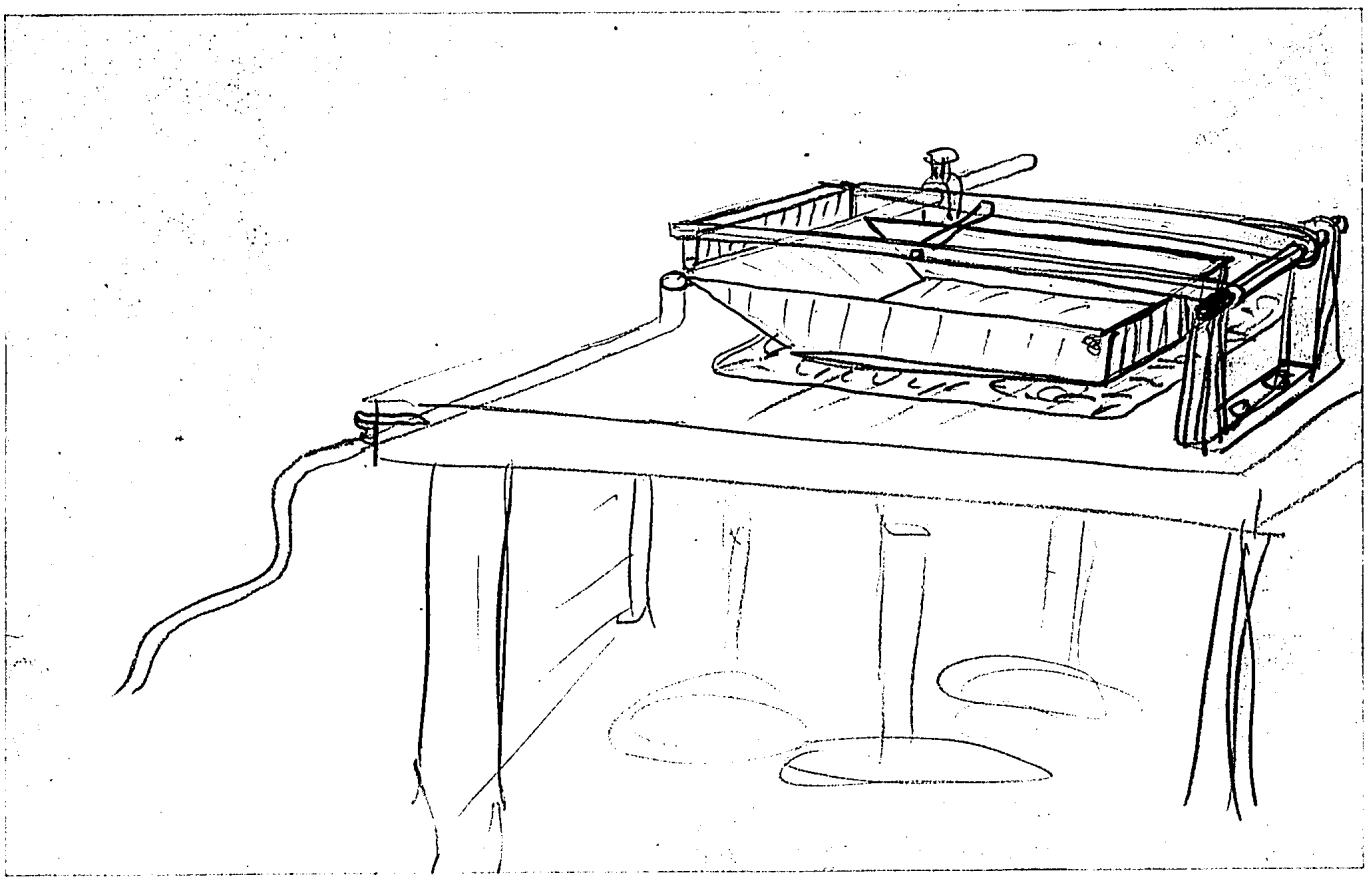
1350
225
1125

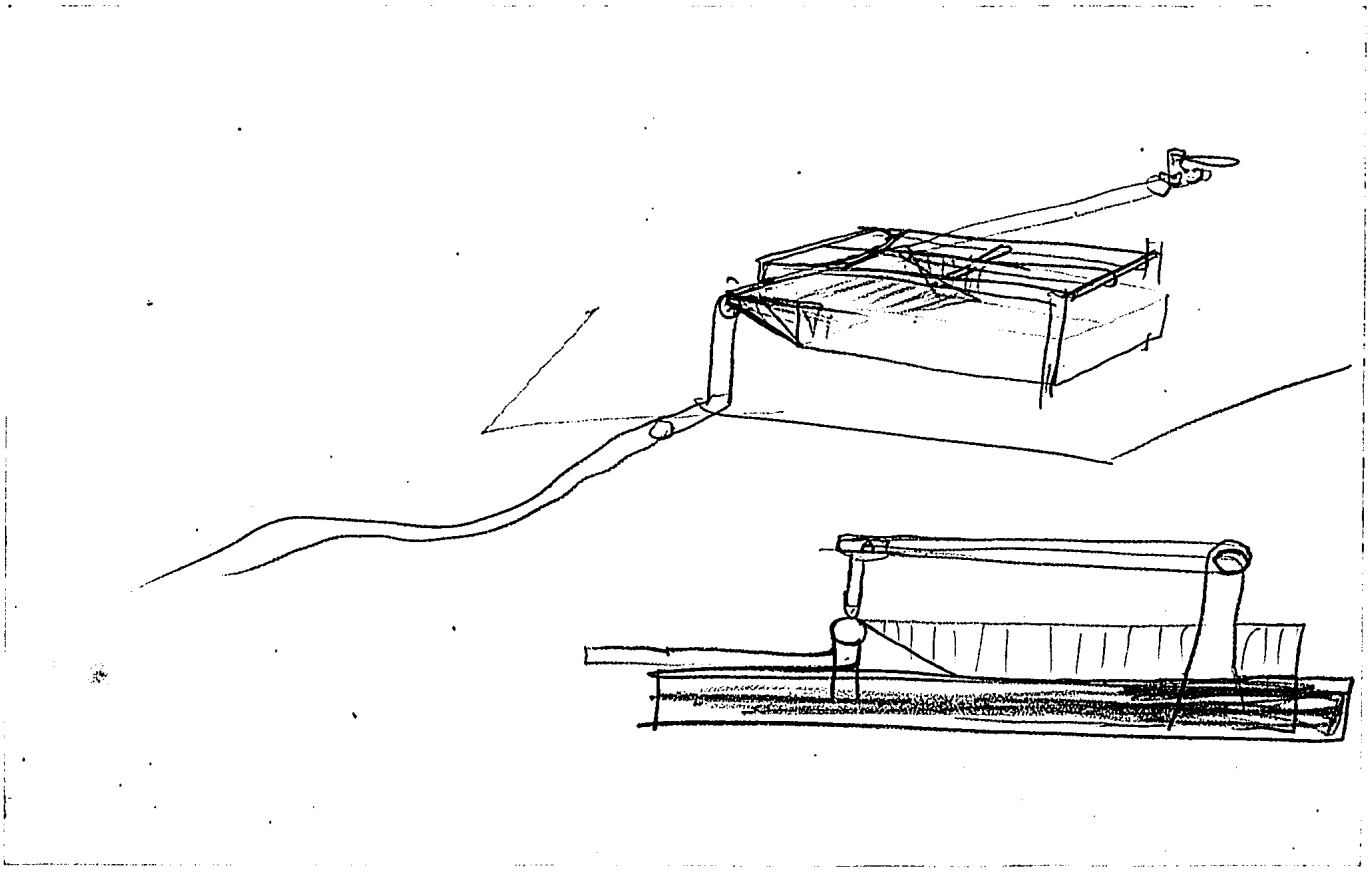
1550
225
1325

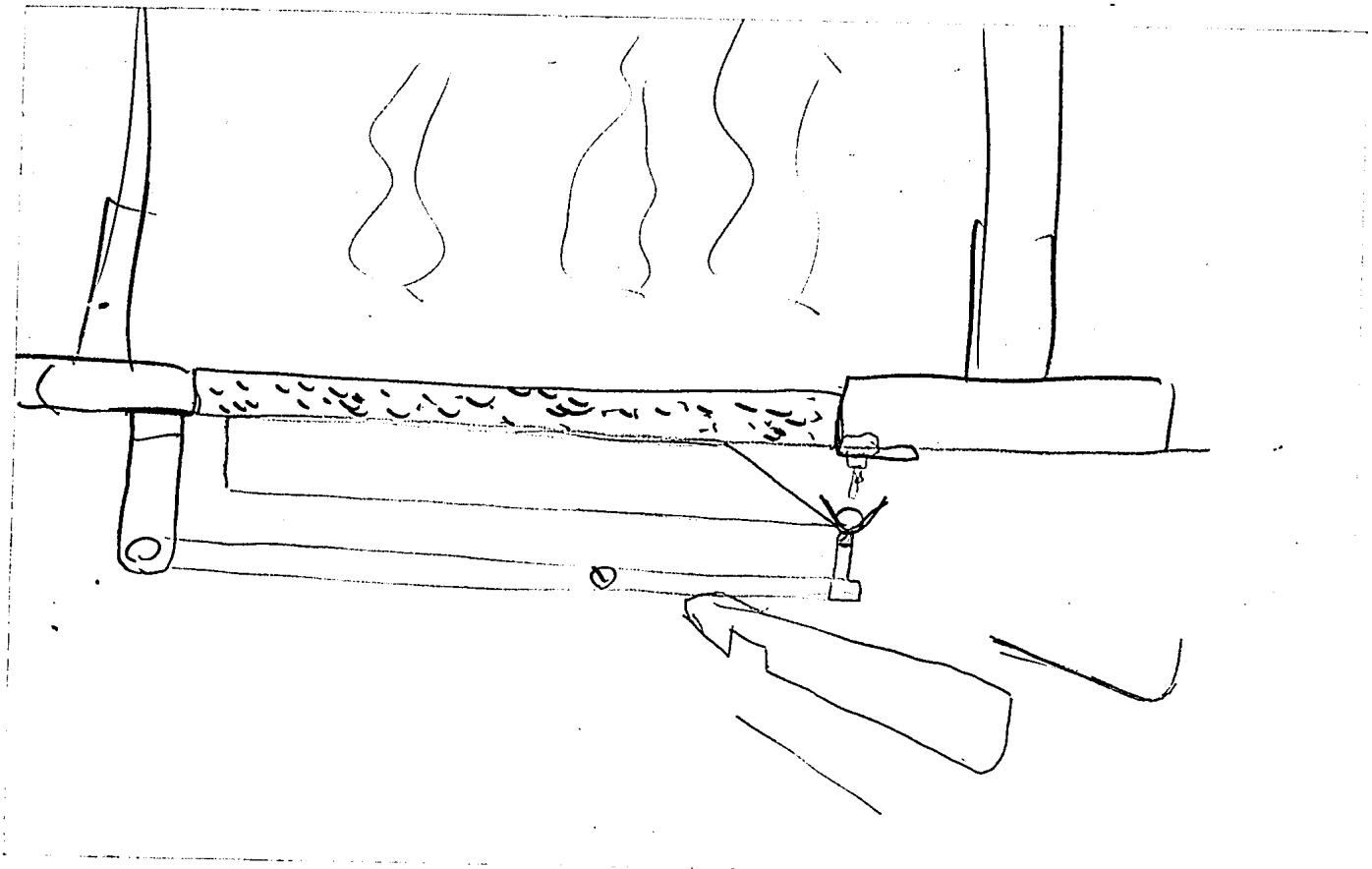

S
N

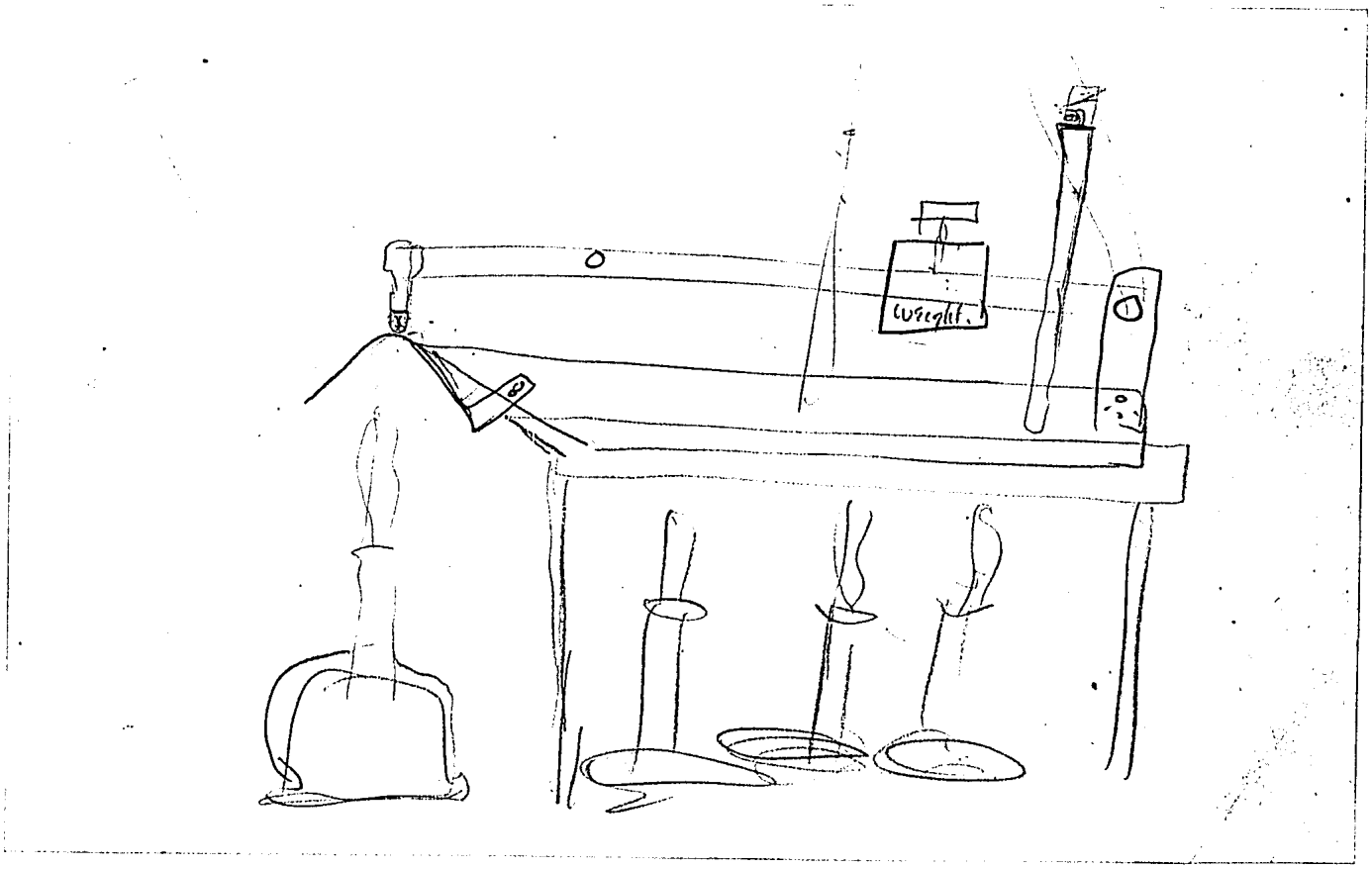

50
320
320 000 M/s


S
N
N
S
S
N





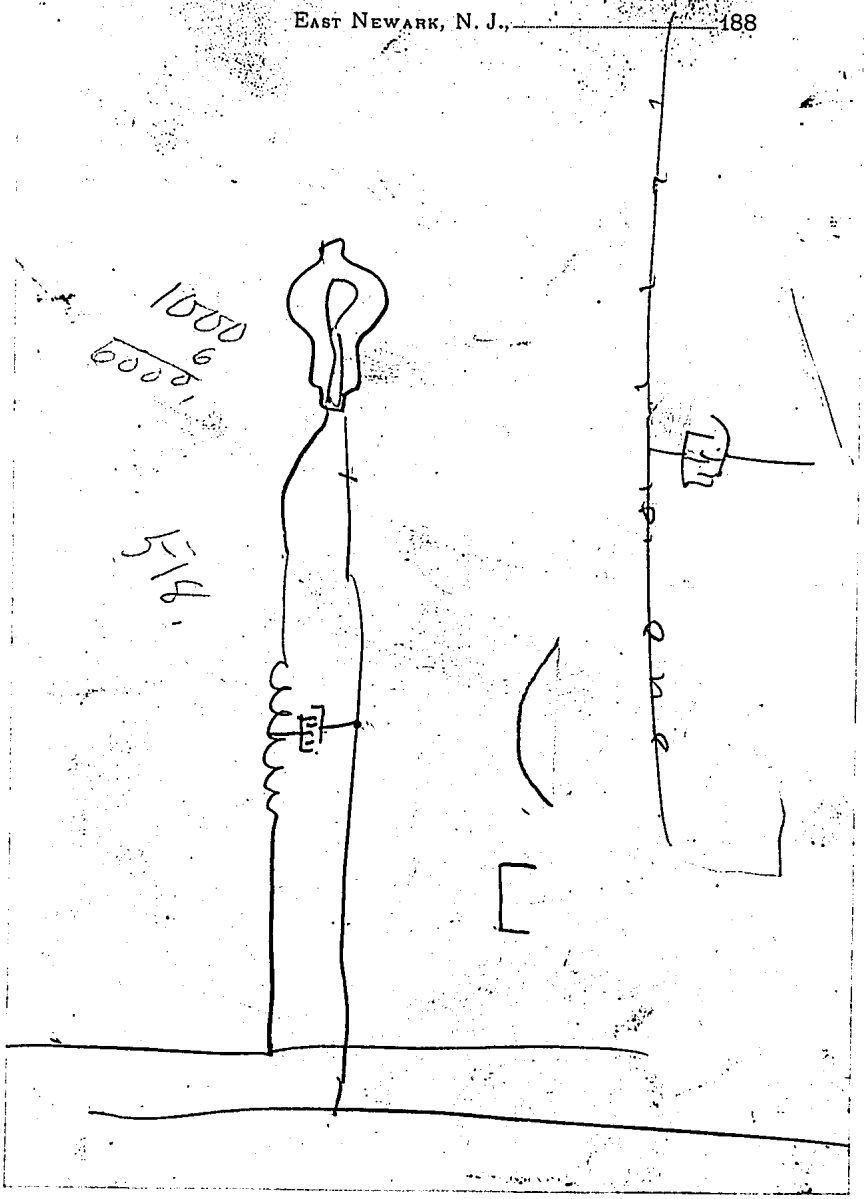



weight.

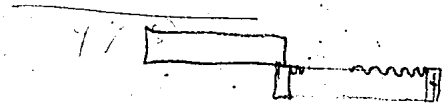
EDISON LAMP COMPANY.

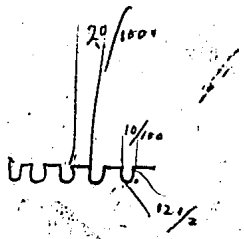
THOMAS A. EDISON, President.
FRANCIS R. UPTON, Gen'l M'g'r & Treas.

EAST NEWARK, N. J., _____ 188

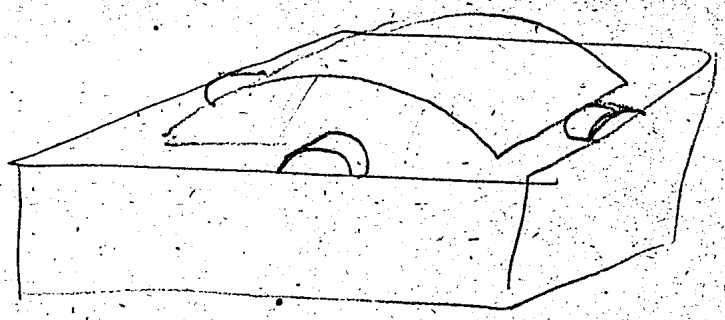


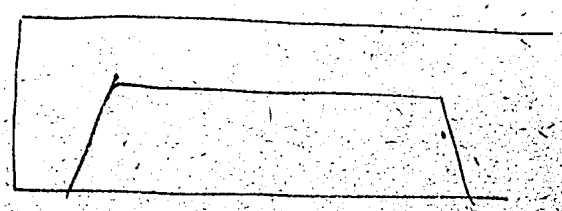
1045
600



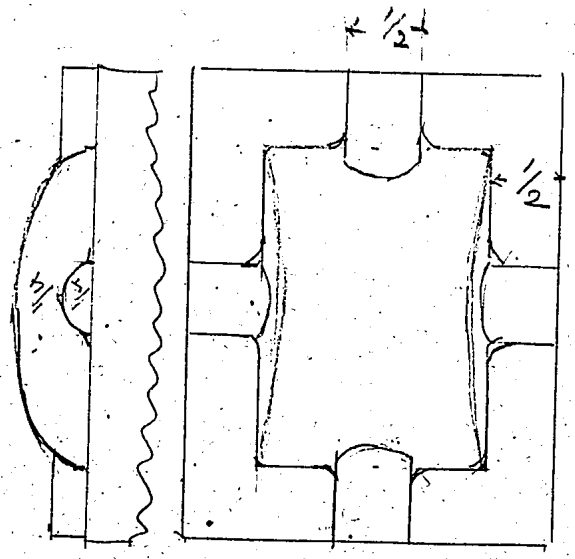


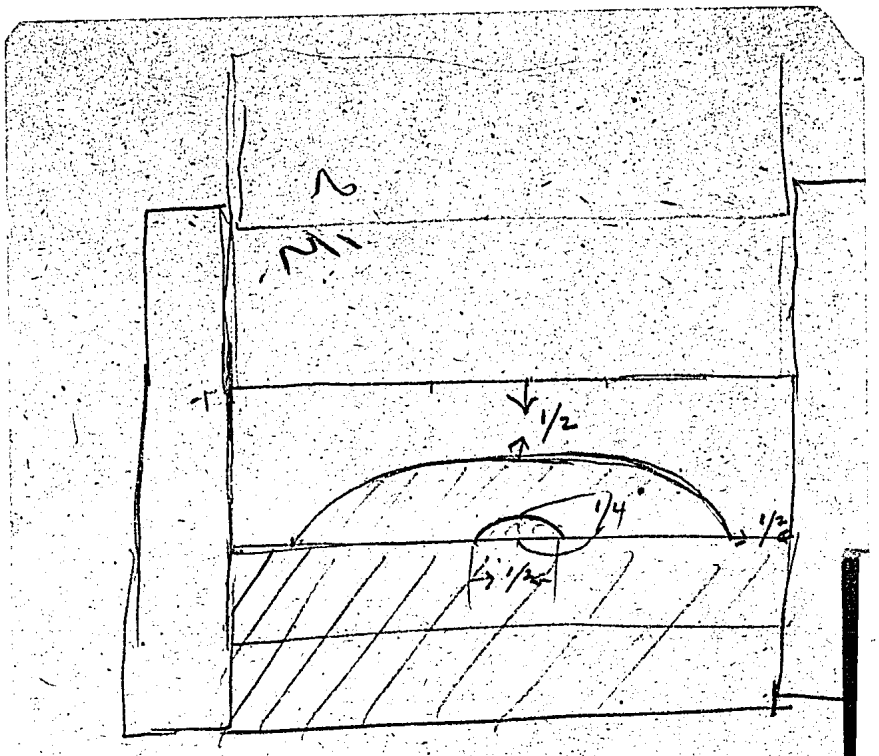
3 X 2 by 1 deep -

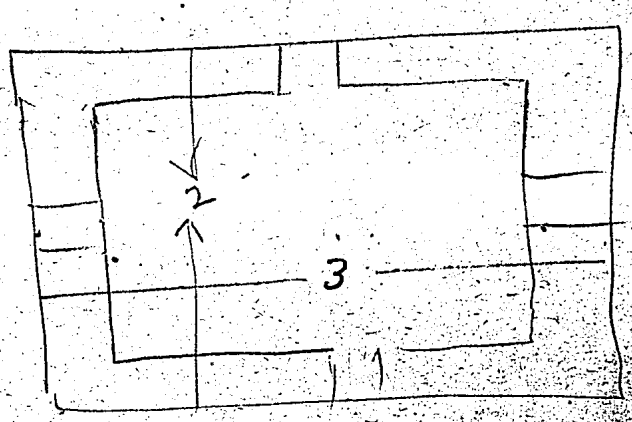




No 602







1" deep

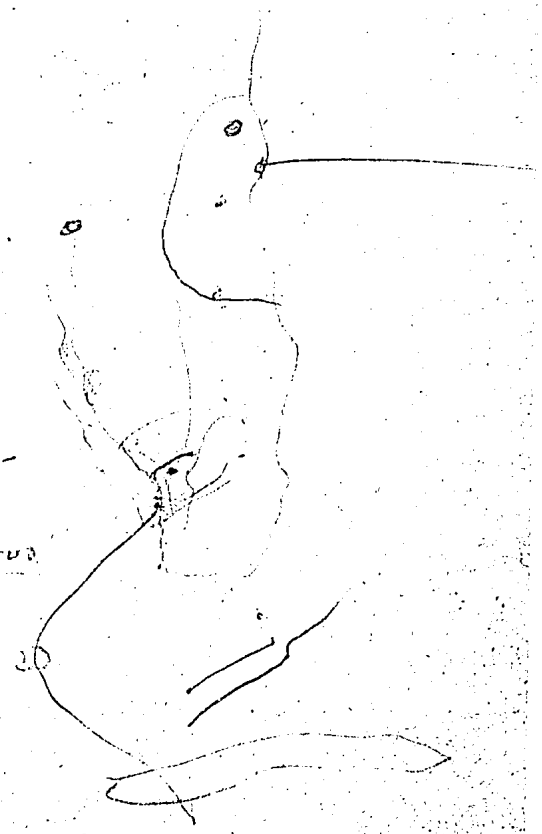
9 C.

3 00.

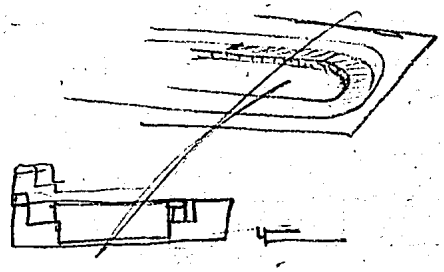
16, 7m' -

200 | 12 000 000
6000.

90-



perfectly very thin on baking the sugar will carbonize & make a very hard film smooth thin & with very little friction for weight.
~~proved~~



aconitine.

acrolein-ammonia.

agar-agar or Bengal Isinglass
thin transparent strips off
seaweed - sol in hot
Mushroom - squeeze - Easy to
get Cellulose heat successively
with water weak soda-lye
HCl & Alcohol

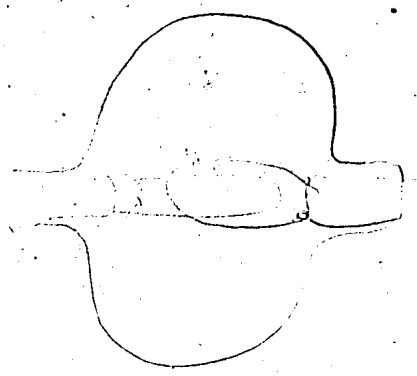
a paste made of whole eggs, slaked
lime, salt or hard as stone —
sockets.

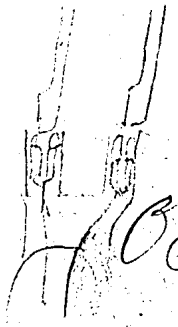
aloes,
amber softens by heat,
Anchusin or Anchusic, matter from
the Alkanet root soften without
melting

anemonin $C_{30}H_{12}O_6$
softens 150 C. carbonizes at
from the leaves of the anemone

arrowroot - good contains 26
pct starch 6 pct woody fibre

Asphaltene, obtained by heating
asphalt 48 hours to 250 C
wholly petroleum is volatilized —
black solid strong lustre conchoidal
fracture soft + elastic at 300 C
decompos before melts




OK
copper plated
and in 4 springs
white glass
plastic

Max 13000
Reg. 1000 10 c/p Lamp
Cost 14000

1000

Engr.	3.00
Fireman	200
Coal	4.00
oil	50
Lamp	200
Extras	1.00
	12 50
	1.50
Rent	14.00

650
6

30,000

10000
3
30000.

12.
300
3 600.

Siemens 12-Lights $200 or $16.6 per light.
Our 18 Light 16 A or 32 B. of 20 candles $160. [illegible] $9 "

18 | 150 (8.3
144
60
54

25 Light Siemens $285 $11.4 per light.
our 18 Light. 10 of 20 15 of 10 candles 6.4

25 | 285 (11
25
35
25
100

80 Light Edisons. 40 of 20 c 40 of 10 $560 - $7 per light.
a Z Dynamo -
80 Light Siemens - $725. $9 per light

12 | 200 (16.6
12
80
72
80

18
30
360

18
16
108
18
288

Edison L Dynamo 100 of 20 c 100 of 10c $900
or $4.5 per light.
Siemens 200 Light. $1125 or $5.6

3/25
8 per hp in 25-hr mine

4/40
10 ~~per hp~~ per hp

6/60
10 per hp

84.20

14
30
42.0

14
20
28.0

55
5
275

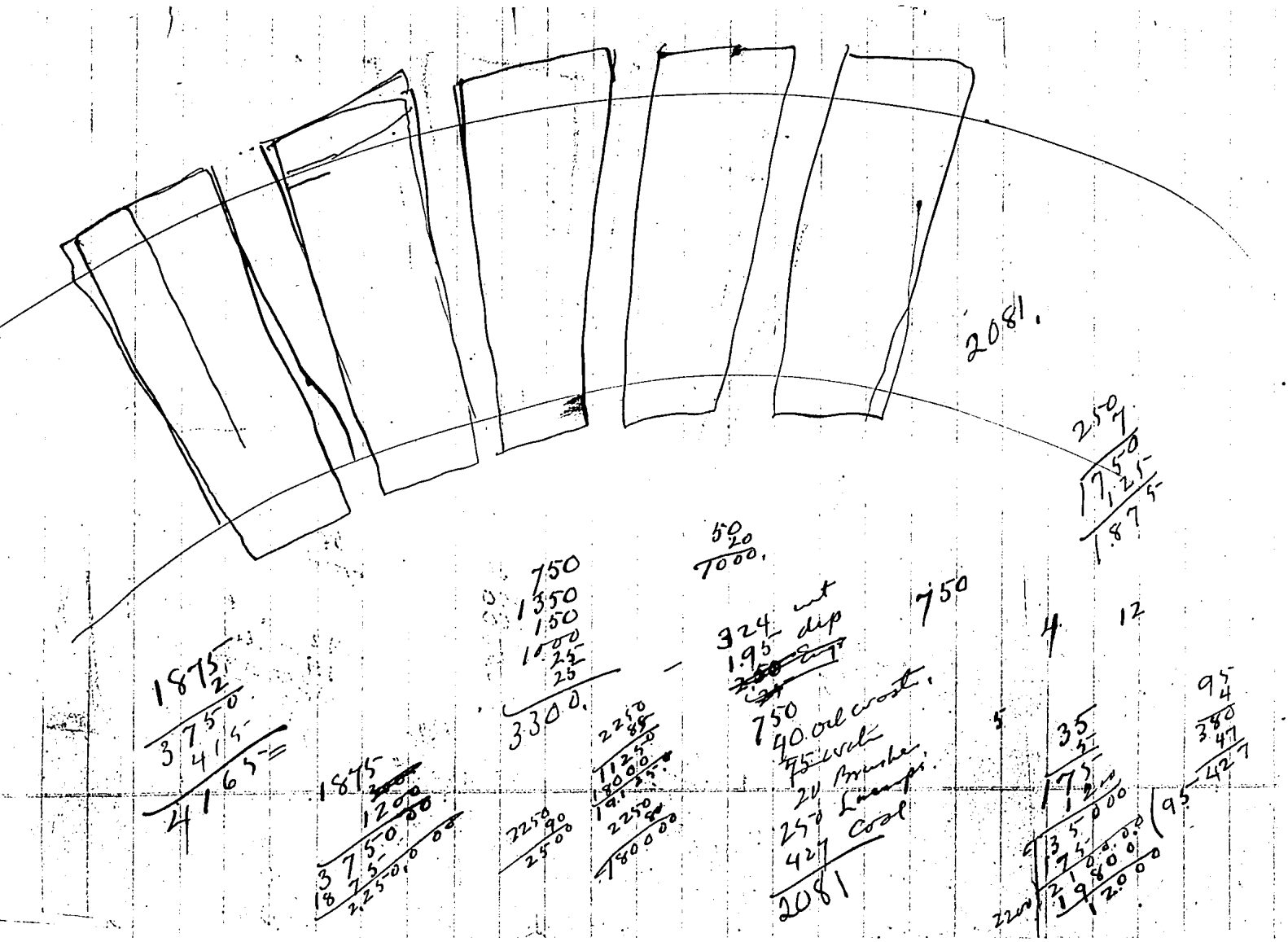
40
20

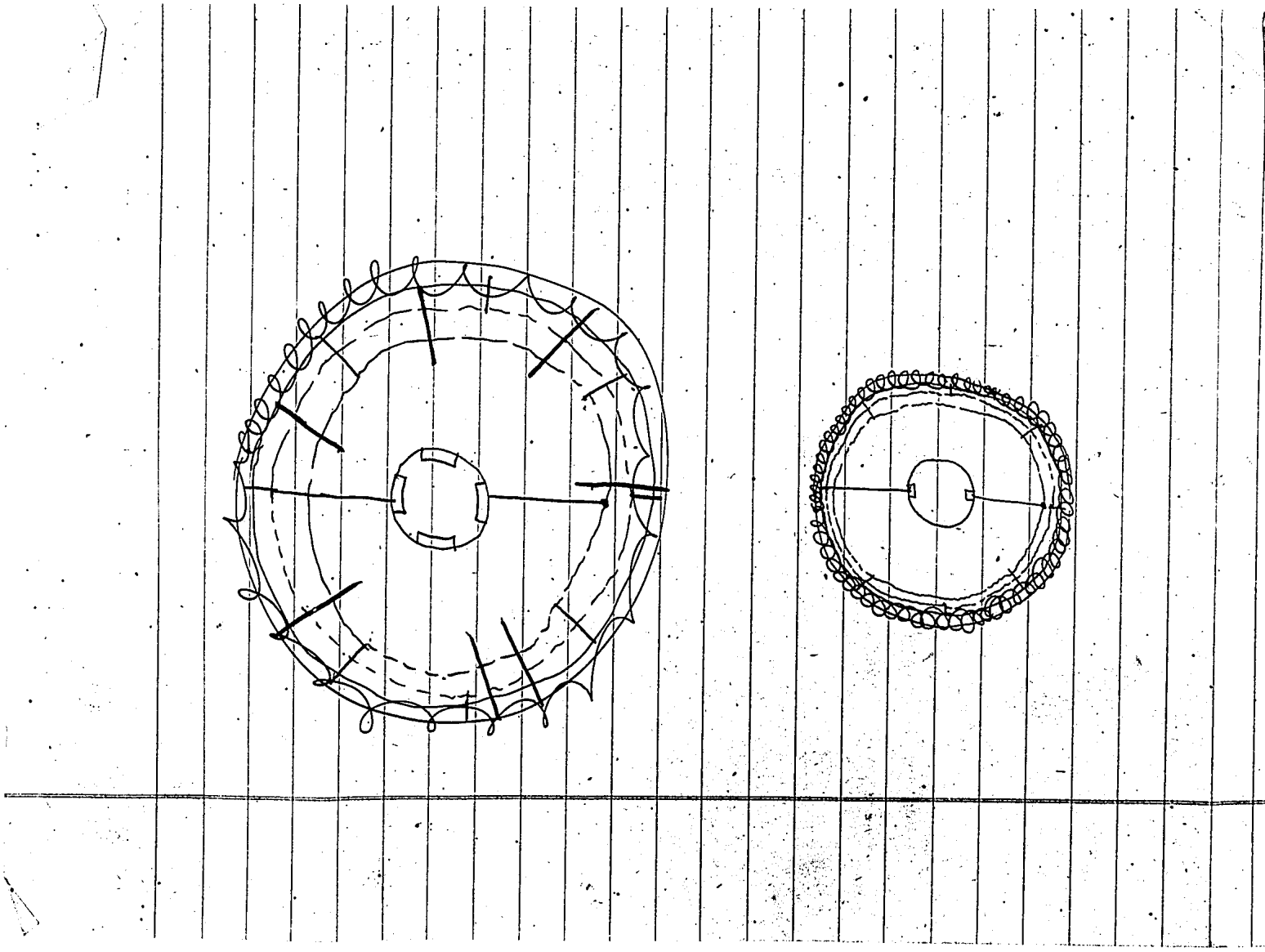
40

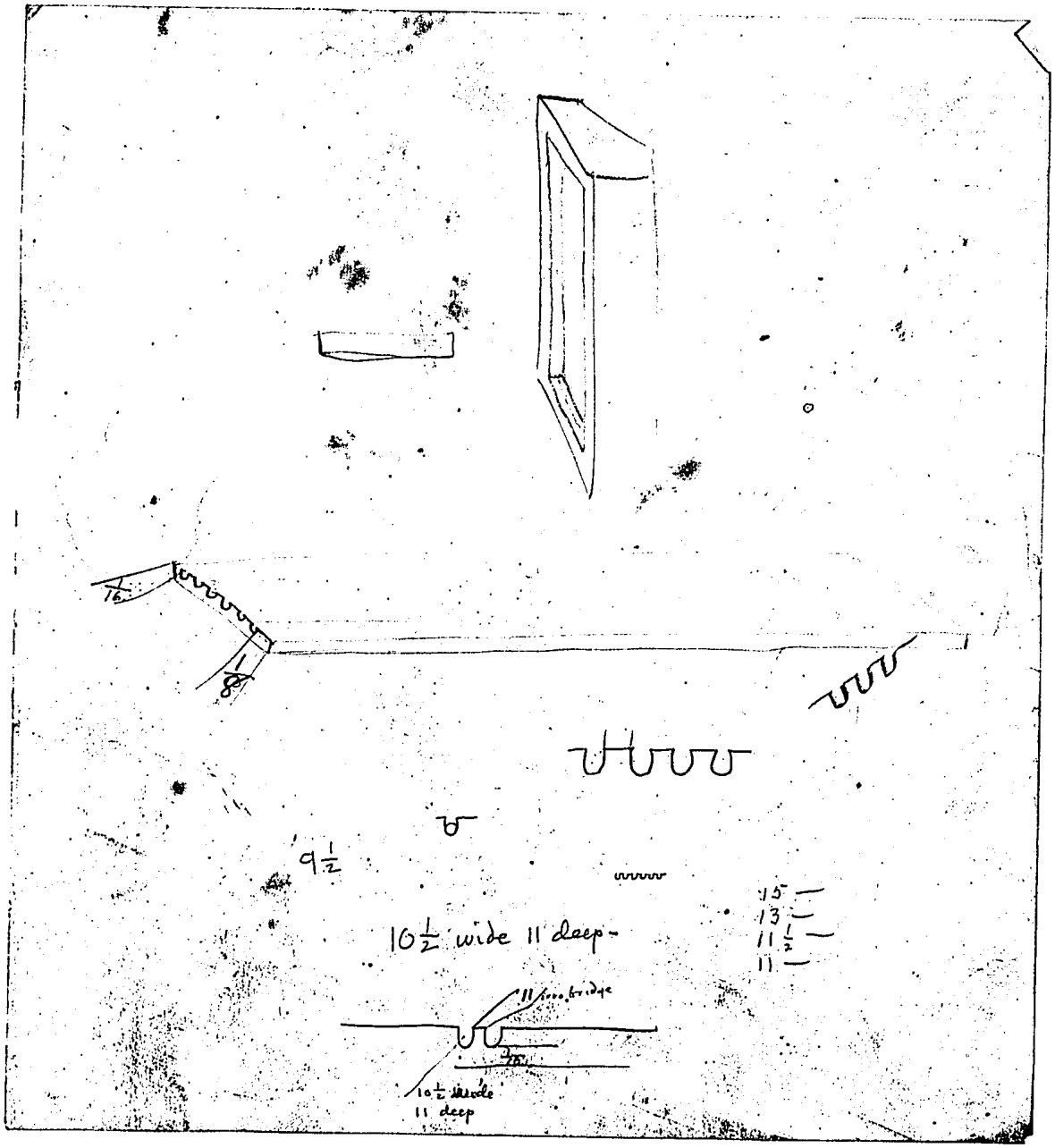
400
8

80/120.0 (1.5
80
40.0
320
80.

14
80
112


2081.
750
1350
150
1000
25
25
330.0.
50
20
7000.
324 wt
195 dip
750
40 oil cost.
75 wash
20 Brushes
250 Lamps
427 Coal
2081
750
4
12
5
35
175
1875
375
415
1875
1200
3750.
2250
2250
90
250
2250
180000
95
380
47
427




9 1/2
10 1/2 wide 11 deep
15
13
11 1/2
11
11 foot bridge
10 1/2 wide
11 deep